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Water System No. :	CA1910026	**Federal Type :**	C
Water System Name :	COMPTON-CITY, WATER DEPT.	**State Type :**	C
Principal County Served :	LOS ANGELES	**Primary Source :**	SWP
Status :	A	**Activity Date :**	01-01-1976

Points of Contact

Name	Job Title	Type	Phone	Address	Email
FREEMAN, MARTIN	GENERAL MANAGER	AC	310-605-5595	205 S WILLOWBROOK AVE., COMPTON, CA-90220	MFREEMAN@COMPTONCITY.ORG

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	71000

Service Connections

Type	Count	Meter Type	Meter Size Measure
CB	363	ME	0
CM	1153	ME	0
IN	142	ME	0
RS	12602	ME	0

Sources of Water

Name	Type Code	Status
MWD CONNECTION CB-1 - TREATED	CC	A
MWD CONNECTION CB-3 - TREATED	CC	A
MWD CONNECTION CB-4 - TREATED	CC	A
WELL 11	WL	A
WELL 13	WL	A
WELL 15	WL	A
WELL 16	WL	A
WELL 17	WL	A
WELL 18	WL	A
WELL 19	WL	A
RICHLAND WELL 01 - ABANDONED	WL	I
RICHLAND WELL 02 - ABANDONED	WL	I
WELL 01 - DESTORYED	WL	I
WELL 02 - DESTORYED	WL	I
WELL 06 - ABANDONED	WL	I
WELL 08 - ABANDONED	WL	I
WELL 09 - DESTORYED	WL	I
WELL 10 - DESTORYED	WL	I
WELL 12 - ABANDONED	WL	I
WELL 14 - DESTROYED	WL	I
WELL 20 - PENDING	WL	P

Service Areas

Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
CA1910087	METROPOLITAN WATER DIST. OF SO. CAL.	null	null	CC	018
CA1910087	METROPOLITAN WATER DIST. OF SO. CAL.	null	null	CC	016
CA1910087	METROPOLITAN WATER DIST. OF SO. CAL.	null	null	CC	017

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Water System No. :	CA1910079	**Federal Type :**	C
Water System Name :	LYNWOOD-CITY, WATER DEPT.	**State Type :**	C
Principal County Served :	LOS ANGELES	**Primary Source :**	SWP
Status :	A	**Activity Date :**	03-22-1979

Points of Contact

Name	Job Title	Type	Phone	Address	Email
MOLINA, JOSE	MANAGER UTILITY SERV	AC	310-603-0220	11330 BULLIS ROAD, LYNWOOD, CA-90262	JMOLINA@LYNWOOD.CA.US

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	64769

Service Connections

Type	Count	Meter Type	Meter Size Measure
CM	1313	ME	0
RS	7635	ME	0

Sources of Water

Name	Type Code	Status
MWD CONNECTION - TREATED	CC	A
WELL 05 - ACTIVE	WL	A
WELL 08 - ACTIVE	WL	A
WELL 09 - ACTIVE	WL	A
WELL 11 - ACTIVE	WL	A
WELL 19 - ACTIVE	WL	A
WELL 01 - INACTIVE	WL	I
WELL 02 - DESTROYED	WL	I
WELL 03 - INACTIVE	WL	I
WELL 04 - INACTIVE	WL	I
WELL 06 - INACTIVE	WL	I
WELL 07 - INACTIVE	WL	I
WELL 10 - DESTROYED	WL	I
WELL 15A - OFFLINE - INACTIVE	WL	I
WELL 17A - DESTROYED	WL	I
WELL 17B - DESTROYED	WL	I
WELL 18 - DESTROYED	WL	I
WELL 20 - INACTIVE	WL	I
WELL 22	WL	P

Service Areas

Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
CA1910087	METROPOLITAN WATER DIST. OF SO. CAL.	null	null	CC	018

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Water System No. :	CA1910152	**Federal Type :**	C
Water System Name :	SOUTH GATE-CITY, WATER DEPT.	**State Type :**	C
Principal County Served :	LOS ANGELES	**Primary Source :**	GW
Status :	A	**Activity Date :**	01-01-1976

Points of Contact

Name	Job Title	Type	Phone	Address	Email
CASTILLO, CHRIS	WATER DIVISION MANAG	AC	323-563-5790	8650 CALIFORNIA AVENUE, SOUTH GATE, CA-90280	CCASTILLO@SOGATE.ORG

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	98434

Service Connections

Type	Count	Meter Type	Meter Size Measure
CM	1487	ME	0
IN	663	ME	0
RS	14348	ME	0

Sources of Water

Name	Type Code	Status
MWD CONN. CB-11 - TREATED	CC	A
MWD CONN. CB-7 - TREATED	CC	A
WELL 13 - STANDBY	WL	A
WELL 14	WL	A
WELL 18	WL	A
WELL 19	WL	A
WELL 23 - STANDBY	WL	A
WELL 24	WL	A
WELL 25 - STANDBY	WL	A
WELL 26	WL	A
WELL 27 - STANDBY	WL	A
WELL 28	WL	A
WELL 02 - DESTROYED	WL	I
WELL 07 - DESTROYED	WL	I
WELL 08 - DESTROYED	WL	I
WELL 09 - DESTROYED	WL	I
WELL 12 - DESTROYED	WL	I
WELL 20 - DESTROYED	WL	I
WELL 22-A - DESTROYED	WL	I
WELL 22-B - INACTIVE	WL	I

Service Areas

Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
CA1910087	METROPOLITAN WATER DIST. OF SO. CAL.	null	null	CC	025
CA1910087	METROPOLITAN WATER DIST. OF SO. CAL.	null	null	CC	023

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Water System No. :	CA1910011	**Federal Type :**	C
Water System Name :	GSWC - BELL, BELL GARDENS	**State Type :**	C
Principal County Served :	LOS ANGELES	**Primary Source :**	SWP
Status :	A	**Activity Date :**	03-22-1979

Points of Contact

Name	Job Title	Type	Phone	Address	Email
MILLER, LISA	WATER QUALITY ENGR.	AC	562-907-9200	12035 Burke Street, Suite 1, SANTA FE SPRINGS, CA-90670	Lisa.Miller@gswater.com

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	24536

Service Connections

Type	Count	Meter Type	Meter Size Measure
AG	29	ME	0
CM	3178	ME	0
IN	8	ME	0
RS	4139	ME	0

Sources of Water

Name	Type Code	Status
MWD CONNECTION CB3 - TREATED	CC	A
BISSELL WELL #3	WL	A
BISSELL WELL 02	WL	A
CLARA WELL 02	WL	A
GAGE WELL 02	WL	A
OTIS WELL 03	WL	A
WATSON WELL 01	WL	A
BISSELL WELL 01 - INACTIVE	WL	I
CHANSLOR WELL - INACTIVE	WL	I
CLARA WELL 01 - DESTROYED	WL	I
DARWELL 01 - DESTROYED	WL	I
FLORENCE WELL 01 - ABANDONED	WL	I
GAGE WELL 01 - INACTIVE 10/15/12	WL	I
HOFFMAN WELL 02 - DESTROYED 10/26/07	WL	I
OTIS WELL 01 - DESTROYED	WL	I
OTIS WELL 02 - DESTROYED	WL	I
PRIORY WELL 02 - INACTIVE 10/15/12	WL	I

Service Areas

Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
CA1910087	METROPOLITAN WATER DIST. OF SO. CAL.	null	null	CC	018

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Water System No. :	CA1910086	**Federal Type :**	C
Water System Name :	MAYWOOD MUTUAL WATER CO. #3	**State Type :**	C
Principal County Served :	LOS ANGELES	**Primary Source :**	SWP
Status :	A	**Activity Date :**	03-22-1979

Points of Contact

Name	Job Title	Type	Phone	Address	Email
ROHLF, ROBERT	DIR. OF OPERATIONS	AC	323-560-3657	6151 HELIOTROPE AVENUE, MAYWOOD, CA-90270	rcr4900@aol.com

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	9500

Service Connections

Type	Count	Meter Type	Meter Size Measure
IN	59	ME	0
RS	1945	ME	0

Sources of Water

Name	Type Code	Status
MWD CONN. CB-31A-MIDDLE FEEDER/TREATED	CC	A
WELL 04	WL	A
WELL 07	WL	A
57TH STREET WELL 03 - DESTROYED	WL	I
DISTRICT PLANT WELL 02 - ABANDONED	WL	I
PROSPECT WELL 01 - INACTIVE	WL	I

Service Areas

Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
CA1910087	METROPOLITAN WATER DIST. OF SO. CAL.	null	null	CC	005

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Water System No. :	CA1910169	**Federal Type :**	C
Water System Name :	WALNUT PARK MUTUAL WATER CO.	**State Type :**	C
Principal County Served :	LOS ANGELES	**Primary Source :**	GW
Status :	A	**Activity Date :**	01-01-1976

Points of Contact

Name	Job Title	Type	Phone	Address	Email
GOMEZ, MIKE	CO MANAGER	AC	323-581-3226	2460 E. FLORENCE AVENUE, HUNTINGTON PARK, CA-90255	WPMWC@SBCGLOBAL.NET

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	16180
1	1	12	31	W	35

Service Connections

Type	Count	Meter Type	Meter Size Measure
RS	2828	ME	0

Sources of Water

Name	Type Code	Status
MWD CONNECTION - TREATED	CC	A
WELL 10	WL	A
WELL 11	WL	A
WELL 12	WL	A
WELL 08 - DESTROYED	WL	I
WELL 09 - DESTROYED	WL	I

Service Areas

Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
CA1910087	METROPOLITAN WATER DIST. OF SO. CAL.	null	null	CC	005

Reference:
DTSC, 2013

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
ENVIROSTOR

PROJECT SEARCH RESULTS

STATUS: All Statuses GO

SEARCH CRITERIA: 9636 ATLANTIC, SOUTH GATE

0 RECORDS FOUND | EXPORT TO EXCEL | PAGE 1 OF 1

NO PROJECTS FOUND WITH THOSE SEARCH PARAMETERS.

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Reference:
DWR, 1961

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN DISTRICT

BULLETIN NO. 104

PLANNED UTILIZATION OF THE GROUND WATER BASINS OF THE COASTAL PLAIN OF LOS ANGELES COUNTY

APPENDIX A
GROUND WATER GEOLOGY

EDMUND G. BROWN
Governor

WILLIAM E. WARNE
Director

JUNE 1961

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(Bound at end of report)

CHAPTER IV STRATIGRAPHY

This chapter describes the stratigraphy, or the physical characteristics of the natural groupings of the rocks and sediments, in the Coastal Plain of Los Angeles County, including the age of rocks and sediments, their order in relationship to each other, and their position in the area. In order to simplify the discussion of stratigraphy, the rocks and sediments in the coastal plain are divided into water-bearing deposits and nonwater-bearing rocks.

The water-bearing deposits include the unconsolidated and semi-consolidated marine and nonmarine alluvial sediments of Recent, Pleistocene, and Pliocene age which form ground water basins. These materials absorb, transmit, and yield water readily to wells. Sizes of individual particles may grade from coarse gravel and boulders to clay. Coarse sands and gravels form the conduits for transmission of ground water and are called aquifers, while the finer sands, silts and clays, which also transmit ground water, but very slowly, are known as aquicludes.

The types of materials encountered by surface and subsurface geologic exploration and water well drilling, as reported by various individuals and agencies, are summarized on Table 1, which is bound at the end in this report. Based upon this information, the areal extent, thickness, and depths of the various aquifers and aquicludes underlying the coastal plain were estimated. The aquifers were named and their stratigraphic positions are illustrated schematically on Plate 5, entitled "Generalized Stratigraphic Column, Coastal Plain of Los Angeles County". Since the aquicludes which separate aquifers are generally of secondary interest, and because of additional complications of nomenclature, only the surface aquiclude is named. An attempt has been made to bring together and clarify the nomenclature used by many individuals and agencies. Therefore Plate 5 also relates the nomenclature system utilized in this report with that employed by others in the past.

The term "nonwater-bearing rocks" used in this report should not be construed to mean rocks which contain no water, but rather materials from which wells produce relatively limited quantities of water. Nonwater-bearing rocks are the parent rocks from which alluvium is derived. These rocks flank, underlie, and sometimes form the limits of the ground water basins and provide watersheds for runoff or drainage to valley-fill areas. Nonwater-bearing rocks include granitic, metamorphic, volcanic, and consolidated sedimentary types. Locally, the sedimentary rocks may yield a small amount of brackish, saline, or other poor quality waters. Water which drains from these rocks may also affect the quality of water in the sediments of valley-fill areas. Even within the crystalline basement rocks, some extractable water is contained within the joints, fractures, and solution cavities. In the highland areas, wells in volcanic flows and breccias yield limited quantities of water. The yield of wells in the volcanics, however, is usually restricted either because there is a lack of connected interstices or because they are so situated topographically or structurally that cementation, folding and faulting interferes with the vertical and lateral flow of ground water.

The following sections describe the water-bearing deposits and nonwater-bearing rocks in detail beginning with the geologically most recent, and working backward in time to the oldest strata. The surface outcroppings of the various formations are delineated on Plate 3. The conclusions of this study relating to the depth and thickness of the various aquifers and aquicludes in the coastal plain are illustrated by a series of idealized geologic sections cutting the area in east-west and north-south directions. These sections are shown on Plates 6A through 6G, entitled "Idealized Geologic Sections"; and the geographic locations of the sections are indicated on Plate 3, together with the locations of wells and test holes from which the geologic sections were derived. In addition to the wells and test holes shown on these plates, there were two to three times as many wells and test holes that were studied. These data were used to assist in delineating the boundaries of the aquifers and aquicludes.

In constructing the geologic sections, it was much easier to correlate aquifers from well log to well log in the marine sediments found southwest of the Newport-Inglewood uplift than it was in the area to the northeast. Consequently, the correlations in the continental sediments, especially those adjacent to the high lands are more definitive than are those in the marine sediments closer to the ocean. Also, the geologic sections in the West Coast Basin (this basin is described in Chapter 6) were mainly based on data taken from the Report of Referee (Calif. D.W.R. 1952a), modified slightly by unpublished data obtained from the Los Angeles County Flood Control District.

Subsurface structure and positions of aquifers in the area downstream from Whittier Narrows are illustrated by a series of cut-away diagrams shown on Plate 7, entitled "Cut-Away Diagrams of Aquifers in Vicinity of Whittier Narrows". These diagrams are of assistance in following the discussion of stratigraphic relationships but are discussed in detail in Chapter V. Detailed discussions of structural features referred to in the following sections are also contained in Chapter V.

Quaternary System

Sediments of Quaternary and late Pliocene age comprise the water-bearing formations in the coastal plain. The Quaternary deposits are divided into the Recent and Pleistocene series.

Alluvial materials and rocks of Recent and Pleistocene age usually are unconsolidated and have suffered deformation to a lesser degree than the older underlying rocks. These younger alluvial materials are generally more heterogeneous than the older sediments although this may be more apparent than real, since more detailed information is usually available for younger sediments than for those older in age. In the detailed studies of oil fields, by contrast, the heterogeneity of older sediments is apparent.

Ground water extracted from wells is obtained primarily from aquifers of Recent and Pleistocene age, with the exception of a few wells in the Lakewood and North Long Beach areas which are perforated in sediments of late Pliocene age.

Deposition of Quaternary sediments has been controlled by tectonic activity, geomorphic processes, changes in climate, and world-wide changes in sea level, as previously discussed. The physical characteristics of those water-bearing series that favor high production of ground water are: their unconsolidated and permeable nature, their relatively undeformed state, their low topographic position, which permits infiltration of drainage from higher surrounding areas, their freedom from obstructions to flow in most areas, the ease with which their materials may be dewatered, or drained, and the ease with which in certain areas they may be naturally or artificially recharged.

Recent Series

Reade (1872) first defined the Recent epoch as that time which has elapsed since the beginning of the last major rise in sea level, and this definition has been adopted for use in this report. An approximate age of 15,000 years has been assigned to the Recent epoch by Shepard (1956) and Hopkins (1959).

Recent materials were laid down upon the erosional surface that existed toward the end of the last glacial stage. In most of the Coastal Plain of Los Angeles County these sediments are stream deposits but near the ocean they include tidal, marine, and wind-deposited materials.

Recent deposits are recognizable by:their generally coarse, unconsolidated or uncemented nature (however, on Recent flood plains, alluvial fans, and certain marine deposits, fine-grained silts and clays are common), their unconformable relationship with the underlying late Pleistocene and older deposits, their relationship to the present drainage system including numerous gaps along the coast and other physiographic features, and the youthful or poorly developed soil normally found on the surface. Little deformation of the Recent sediments has occurred except where they cross tectonically active areas, as in Dominguez and Ballona Gaps. Two major members of the Recent series are shown in the areal geology presented on Plate 3 namely, alluvium, represented by the symbol Qal and active dune sand represented by Qsr.

Alluvium. Recent Alluvium is primarily stream deposited gravel, sand, silt and clay with some interbedded littoral and estuary or bay deposits near the ocean. Geologic members found within the alluvial deposits include the Semiperched aquifer, Bellflower aquiclude, Gaspur aquifer, and

Ballona aquifer. Portions of the Semiperched aquifer and Bellflower aquiclude are of late Pleistocene age, placing them in the Lakewood formation. They are described here, however, together with the deposits of Recent age.

Semiperched Aquifer. Coarse sands and gravels, called the Semiperched aquifer, are found on or near the surface of much of the Coastal Plain of Los Angeles County. These materials vary in thickness from 0 to 60 feet and may contain significant amounts of unconfined water where they are more than 20 feet thick. The most important areas where this aquifer appears are in the Los Angeles and Montebello Forebay Areas, and irregular patches occur throughout the rest of the coastal plain.

Where the underlying aquifers are confined, the Semiperched aquifer is generally separated from them by silts and clays or other material of relatively low permeability, called the Bellflower aquiclude. These materials inhibit the free percolation of water from the Semiperched aquifer to the underlying aquifers.

Permeable sediments of both Recent and late Pleistocene age are included within the Semiperched aquifer. Most of the sediments are probably remnants of abandoned stream channels, although marine deposits previously known as the Palos Verdes Sand are a part of the aquifer underlying portions of the Torrance Plain.

Little beneficial use is made of water in the Semiperched aquifer since wells perforated in it yield very small quantities of water. Furthermore, the poor quality of the water in some areas makes it undesirable for widespread use.

Bellflower Aquiclude. Lying directly beneath the Semiperched aquifer are sediments of lesser permeability which restrict vertical movement of ground water. These relatively impermeable materials, referred to in numerous reports in generalized terms, have been designated the Bellflower aquiclude. Physical features and dimensions of this aquiclude are delineated on Plate 8, entitled "Lines of Equal Elevation on the Base of the Bellflower Aquiclude", and on Plate 9, entitled "Lines of Equal Thickness of the Bellflower Aquiclude". The Bellflower aquiclude comprises all of the fine grained sediments that extend from the ground surface, or from the base of the Semiperched aquifer, down to the first aquifer below. Other names that have been used to refer to these materials are: "Upper Division of the Alluvial Deposits of Recent Age" (Poland, et al 1956); "Upper Fine Grained Phase" in California D.W.R. 1952b; and "clay cap" in California D.W.R., 1952c, 1957a, and 1958b. The flood plain deposits referred to by Poland, (1959b) which are found in many portions of the Downey Plain may be equivalent, at least in part, to the Bellflower aquiclude as here defined. Although other reports refer to these sediments as Recent in geologic age, the Bellflower aquiclude, as defined in this report, is composed of both Recent sediments in some areas, and late Pleistocene deposits in others.

The Bellflower aquiclude extends throughout most of the Coastal Plain of Los Angeles County, except for the Los Angeles and Montebello Forebay Areas. According to drillers logs and from visual observation of exposed formations in excavations, this aquiclude is a heterogeneous mixture of fine grained continental, marine, and wind-blown sediments. In about a third of the coastal plain, the aquiclude consists only of clays and silty clays, but extensive lenses and pockets of sandy or gravelly clays occur in the remainder of the area, as shown on Plate 9. These predominantly sandy and gravelly clays may permit waters to percolate slowly to the underlying aquifer or aquifers, or ground water in these latter areas may move upward if pressure levels in the underlying aquifer are sufficiently high. Classification of materials from the descriptions usually found in well logs is difficult; however, in logs where descriptions of materials are more precise and presumably of greater reliability, the sand content is greater than has been generally assumed. Consequently, the aquiclude is believed to have a somewhat greater, though still restricted, permeability than has been supposed in the past.

That portion of the aquiclude of Recent age has not been appreciably faulted or folded; however, the portion of late Pleistocene age has been affected to some extent by tectonic movements.

The thickness of the Bellflower aquiclude, as shown on Plate 9, varies from zero to 200 feet. The areas of greatest thickness occur along the center and east flank of the Gardena Syncline in the West Coast Basin. Other areas of considerable thickness, ranging up to 140 feet, are generally aligned with the South Gate-Santa Ana Depression.

Gaspur Aquifer. The basal coarse phase of the Recent series has been referred to in previous reports as the Gaspur water-bearing zone. These sediments were described by Poland, et al (1956) and in California D.W.R. 1952a and 1952b. The term "aquifer" is used in this report rather than "water-bearing zone", the expression previously employed, as being more descriptive of the function of the deposits. According to Poland, et al (1956) the name of the aquifer is derived from the identification of a typical section in the log of a well near Gaspur Station at the coastal end of Dominguez Gap.

The extent of the Gaspur aquifer is shown on Plate 10, entitled "Lines of Equal Elevation on the Base of the Gaspur, Ballona, Artesia, and Exposition Aquifers". Its westerly arm, extending southerly from the Los Angeles Narrows, joins the easterly arm extending southwesterly from the Whittier Narrows near Downey and continues southwesterly through Dominguez Gap to the ocean. Throughout the 23 mile length of the aquifer the width varies from one to five and a half miles.

The type cobbles and pebbles in the Gaspur aquifer indicate that they are derived from the San Gabriel Mountains and other highland areas surrounding the San Gabriel and San Fernando Valleys.

The continental stream deposits found in the Gaspur aquifer range in size from boulder gravel to silt and clay. In vertical section, the upper part is medium to coarse-textured sand while the lower part consists of sand, gravel, and cobbles as large as four or five inches in diameter. There is also a lateral variation in lithology. Well logs north of Rosecrans Boulevard generally show 80 to 90 percent coarse sands and gravels with 10 to 20 percent finer-grained materials. South of Rosecrans Boulevard, about 40 to 50 percent of the sediments comprising the Gaspur aquifer are fine-grained. The fine-grained patches are discontinuous within the Whittier Narrows, and occur as stringers, or elongated lenses. Variations in the thickness and width of the Gaspur aquifer seem to indicate that the stream or streams responsible for original deposition were meandering, braiding, eroding and aggrading. The absence of fine deposits in the lower portion suggests that they were removed by erosion during flood stages. Thickness of the Gaspur aquifer ranging up to about 120 feet, is delineated on Plate 11 entitled, "Lines of Equal Thickness of the Gaspur, Ballona, Artesia, and Exposition Aquifers".

The Gaspur aquifer is merged with surface deposits in the Montebello Forebay between the Rio Hondo and San Gabriel River, extending as far south as Slauson Avenue. It also crops out in the Los Angeles Narrows in an area bounded by the Los Angeles River and the Harbor Freeway, and extends from the Narrows as far south as Firestone Boulevard. These two outcrops areas are shown on Plate 10A.

The gradient of the base of the westerly arm of the Gaspur aquifer is 44.5 feet per mile (a 300-foot drop in elevation in 6.75 miles). The gradient of the base of the Gaspur aquifer along the easterly arm is about 19 feet per mile (a drop of 200 feet in 10.5 miles). Between San Pedro Bay and the point where the two arms of the Gaspur aquifer join, the gradient is 10 feet per mile (a 60-foot drop in elevation in 6.0 miles). The steepness of the westerly arm may indicate uplift to the north and west, although greater rock hardness in Los Angeles Narrows and/or a difference in stream flow regimen caused by changing debris loads also may have caused this steep gradient. Minor warping of both the aquifer and overlying Recent deposits has probably occurred within the Whittier Narrows and Dominguez Gap. The Gaspur aquifer has apparently not been affected by faulting.

Water levels and well histories indicate that the Gaspur aquifer has been partially dewatered. The majority of new wells drilled in the area under which this aquifer lies do not depend solely on this aquifer but are usually drilled into and perforated in deeper aquifers as well. Many existing wells, however, depend only on this aquifer for their supply, and in these wells the yields are usually high. Permeabilities in this aquifer range up to 6000 gallons per day per square foot. (See Table D in Attachment 2 for general values of permeabilities used in the coastal plain).

The Gaspur aquifer is merged with the deeper aquifers in the area immediately south of Los Angeles Narrows, which at one time served as a recharge area. However, this area is now completely covered by buildings and paved streets. Little, if any, direct percolation of water is possible; even the channel of the Los Angeles River is now lined where it passes through this area.

In the vicinity of Whittier Narrows, the deeper aquifers are also merged with the Gaspur aquifer and receive their natural recharge waters through it. Because percolation in the Los Angeles Narrows has been rendered infeasible, the Whittier Narrows is the most suitable remaining location for artificial recharge of the underlying aquifers. Consequently, the principal recharge basins and projects for recharging local surface flood waters and imported waters are located in this area, from whence natural percolation processes carry this water into the deeper aquifers.

Ballona Aquifer. The other principal aquifer of Recent age is the Ballona aquifer, which has previously been termed the "50-foot gravel". Poland, et al (1959a) originally assigned the name "50-foot gravel" to the lower divisions of the Recent series in Ballona Gap, because these occurred at an average depth of 50 feet below the surface. Although this aquifer is included within the Recent series it is believed that at least part of it may be of late Pleistocene age.

The Ballona aquifer lies north of the Ballona escarpment and extends inland to a point east of the Overland Avenue fault. The extent of this aquifer is shown on Plate 10. It is composed of coarse sand, rounded to subrounded gravel, and cobbles up to five inches in diameter that are of both granitic and metamorphic origin. Slate pebbles in this aquifer suggest that the Santa Monica Mountains were a possible source of material; on the other hand, granitic rocks and pebbles appear to come from the San Gabriel Mountains. The Los Angeles River has flowed north of the Baldwin Hills and along Ballona Creek channel in historic time, but no attempt has been made to determine the relative contribution to the Ballona aquifer from the two drainage systems.

The Ballona aquifer varies in thickness from less than 10 feet at the coast to 40 feet near Beverly Hills. Thickness of the Ballona aquifer is delineated on Plate 11.

The base of the Ballona aquifer drops from more than 100 feet above sea level beneath the Sawtelle Plain to 60 feet below sea level near the Ballona Escarpment, a gradient of about 40 feet per mile. There is a southward tilt to the base, which corresponds to the southerly dip into West Coast Basin of the San Pedro formation, and may be due to either erosion and depositional processes or to tilting, or possibly both.

Well yields from the Ballona aquifer are highly variable, ranging from 100 to 800 gpm (Poland, et al 1959a). This may be due to the irregularity and discontinuity of its composition and thickness.

Miscellaneous Alluvial Deposits. Other Recent alluvial deposits include beach deposits, playa lake deposits and lagoonal marshland deposits. These have been described more elaborately (Poland, et al 1959a), and are treated only briefly in this report.

Narrow strips of beach deposits, with materials ranging in size from fine sand to cobbles, are found adjacent to wave-cut cliffs along the coastline. They also exist as barrier beaches across the various gaps along the coast. The beach deposits act as a source for wind-blown material for the coastal-dune belt and may also serve as a permeable conduit for sea-water intrusion into aquifers near the surface along the coast.

Playa lake deposits found near the intersection of the Coast Highway and Vermont Avenue, about one mile west of Wilmington, have been deposited in shallow closed depressions. Standing water accumulates in these closed drainage areas after heavy rains. These deposits are usually fine-grained sands, silts, and clays.

Lagoonal marshlands extend along the coastal reaches of the Los Angeles and San Gabriel Rivers and Ballona Creek for a distance of one-half to three miles inland. Deposits in these areas appear to be heterogeneous in nature, lenticular, and mostly fine-grained. These sediments may also include medium sand, silty sand, clay and peat deposits.

Active Dune Sand. Wind-blown sands occur in a narrow strip 0.2 to 0.5 miles inland and parallel to the coast and continue from Ballona Escarpment southward to Redondo Beach for a distance of about nine miles. These deposits are known as the Active Dune Sands. Plate 3B shows the extent of these deposits which are identified by the symbol Qsr. These eolian deposits are lenticular, and composed of fine to medium, white or grayish sand, usually well sorted. These sediments may also include medium sand, silty sand, clay and peat deposits. The Active Dune Sands range up to 70 feet in thickness. Being above the zone of saturation, the sands do not yield water to wells. However, they are relatively permeable and water held in closed depressions after heavy rains does percolate vertically downward and laterally. The dune sands may therefore serve as recharge media to any water bodies that underlie this area.

Pleistocene Series

The Pleistocene series is divided into upper Pleistocene and lower Pleistocene in most of coastal California, primarily because they are separated by an angular unconformity in many uplift areas. Fossils are used as an additional index to separation of the Pleistocene series. The boundary between deposits of Pliocene and Pleistocene age is difficult to determine and consequently is somewhat arbitrary in many areas.

In the coastal plain the upper Pleistocene is represented by the Older Dune Sands and the Lakewood formation, while the lower Pleistocene consists of the San Pedro formation (Poland, et al, 1956). Where they appear on the surface the Older Dune Sands, Lakewood formation, and the San Pedro formation are identified by the symbols Qso, Qlw, and Qsp, respectively. on Plate 3. A small zone of transitional material, cropping out between the San Pedro formation and the underlying Pico formation of Pliocene age is also shown on Plate 3 and identified by the symbol Qsp-Pp.

Older Dune Sand. Dune deposits occur in West Coast Basin which are older than those described under the Recent Series. These wind-blown materials are sufficiently significant in manner of deposition, lithology and topography, to be considered in this report as a separate unit. The term "Older Sand Dunes" has been previously used to designate these wind-blown deposits; however, in this report, the more descriptive term "Older Dune Sand" is used to identify these deposits.

The Older Dune Sand has been described by Poland, (1956, 1959b) and in Calif. D.W.R. 1952a and 1957c. Although these sediments have been previously classed as Recent materials, they are now considered to be of late Pleistocene age.

The Older Dune Sand covers an area three to four miles wide and about 13 miles long extending along the Santa Monica Bay Coast line south of Ballona Escarpment. Surface exposures and well logs indicate that the dune sediments cover the Ocean Park Plain as well as a portion of the West Coast Basin. In the Ballona Creek area the older dunes have been removed. In the West Coast Basin the Older Dune Sand together with the Active Dune Sand form the El Segundo Sand Hills.

The Older Dune Sand consists of fine to medium sand with minor sandy silt, clay, and gravel lenses. Within the weathered zone the materials are yellow to brown in color although the unweathered formation in place is white, gray and black in color. The Older Dune Sand generally consists of three divisions: a deeply weathered surface, an intermediate horizon of clean sands and basal beach sands and gravels, and a lowermost horizon which apparently includes a zone of transition to the underlying Bellflower aquiclude.

Cross-bedding, and fossils in exposures near the Hyperion Sewage Treatment Plant at El Segundo and elsewhere, indicate that the sands were originally beach deposits with associated coarse gravels. These beach deposits were exposed to the wind by lowering of the sea level, resulting in formation of the present Older Dune Sand. Deep weathering has oxidized the iron minerals which, through cementation and leaching processes, have partially filled the interstices between individual grains, thus reducing the permeability of the weathered Older Dune Sand to some extent. Uplifting may have gently tilted these dunes toward the southwest.

Deep percolation of surface water occurs in most of the Older Dune Sand area, especially where closed depressions occur. Directly beneath these older dunes in part of the El Segundo Sand Hills, the fine sediments of the Bellflower aquiclude restrict downward movement of ground water. However, the aquiclude is missing along the ocean and ground water can move laterally into an area where downward percolation can again occur.

Lakewood formation. The Lakewood formation includes all upper Pleistocene deposits other than the Older Dune Sand. It includes what has previously been termed "terrace deposits", "Palos Verdes sand", and "unnamed upper Pleistocene deposits". Other names which have been used for upper Pleistocene deposits or parts of these deposits include the Sunny Hill formation (Hoskins, 1954,), and San Dimas formation (Eckis, 1928). These names, however, are awkward for use in the entire coastal plain since the named formations have been described as existing only in the limited associated area. The present designation was selected from a typical section indicated in the log of a well at Lakewood where this formation reaches a maximum thickness of approximately 340 feet.

In the upper part of the Lakewood formation lithologic changes are rapid, with discontinuous permeable zones and considerable variation in particle size. No shell zones have been found in the upper part of this formation. These features represent typical stream type alluviation with flood plain fine-grained sediments comprising from 40 to 80 percent of the total deposits. In the lower horizons the gravels and coarse sands are confined to a narrow belt extending over the Newport-Inglewood uplift. Gravels range from pea-size to cobbles, three to four inches in diameter. Over the balance of the coastal plain, coarse basal deposits of sand and gravel are fairly continuous with discontinuous lenses of sandy silt and clay. The basal part of the Lakewood formation in the Cheviot Hills area of Beverly Hills has been called the Medill sand by Rodda (1957)..

The Lakewood formation extends beneath most of the coastal plain. In portions of the Baldwin Hills, Signal Hill, Palos Verdes Hills, and Coyote Hills, it has been eroded, exposing the underlying San Pedro and older formations. In the La Brea, Santa Monica, and Montebello Plains, and on the flanks of the Palos Verdes Hills and Puente Hills, the Lakewood formation unconformably overlies the lower Pleistocene San Pedro formation, the Pliocene Pico and Repetto formations, and the Miocene Puente formation.

The Lakewood formation is divided into the Artesia-Exposition aquifers, the Gage-Gardena aquifers, and the unnamed aquicludes between the aquifers. In some areas, portions of the Semiperched aquifer and the Bellflower aquiclude, described under Recent alluvium, are included. The base of the Lakewood formation generally coincides with the base of the Gage and Gardena aquifers. The aquifers of the Lakewood formation are discussed in the following paragraphs.

Artesia-Exposition Aquifers. The Artesia and Exposition aquifers, although located in separate geographical areas, are similar in composition and mode of deposition; this leads to the conclusion that they are contemporaneous. They are, therefore, jointly discussed in this section. The Artesia aquifer appears to be related to the San Gabriel River, Coyote Creek, and Santa Ana River systems, and the Exposition aquifer is related to the Los Angeles River drainage system. As shown on geologic section C-C'-C", Plate 6B, these aquifers extend beneath the Gaspur aquifer at which point they merge with each other and with the overlying Gaspur aquifer. On Plates 10 and 11, the contours on the base of the Artesia-Exposition aquifers and lines of equal thickness are not extended beneath the Gaspur aquifer since it is difficult to distinguish the separate aquifers.

The Artesia aquifer extends from the middle of the Santa Fe Springs Plain southward, where it underlies the northern portions of the Bouton Plain, Signal Hill, and Bixby Ranch Hill. It follows the general trend of the present San Gabriel-Coyote Creek drainage as shown on Plate 10. The Artesia aquifer extends southeasterly from the Gaspur aquifer to and beyond the Los Angeles-Orange County line. However, since no study has been made of the extension of this or any other aquifer outside the area of investigation, it is terminated at the county line.

The Artesia aquifer is composed of coarse gravel, coarse to fine sand and interbedded silts and clays. In some areas, individual gravel members within the aquifer can be identified in drillers logs for considerable distances. The Artesia aquifer has a general southwesterly dip, and varies in thickness (Plate 11) and bottom configuration (Plate 10).

The ancestral San Gabriel and Santa Ana Rivers, and Coyote Creek, appear to have been the main source of the sediments comprising this aquifer. The Santa Ana River may have contributed sediments to the southern portion of the area since this river once flowed directly west and joined the San Gabriel River near its present confluence with Coyote Creek.

The geographical extent of the Exposition aquifer is shown on Plate 10. This aquifer consists of one to four discontinuous coarse members. Materials range in size from coarse gravels to clay, with the fine deposits separating the lenticular sandy and gravelly beds. Changes in lithology are frequent as evidenced by the many lenses of silt and clay encountered in the drillers logs.

Deposition of this material appears to have been controlled by the ancestral Los Angeles River, which may have flowed through the Silver Lake area (Riveroll, 1957) in the geologic past, as well as by tributary streams from the Santa Monica Mountains, Elysian Hills, and Repetto Hills. The configuration of the base of the Exposition aquifer, as well as the Artesia aquifer, is highly irregular and it appears that both were deposited on an erosional surface. A study of well logs indicates that the upper coarse members of the Exposition aquifer were either eroded and backfilled by Gaspur deposits or that some of the upper members were deposited contemporaneously with the formation of the Gaspur aquifer. Highway excavations in the vicinity of Boyle Heights and other areas along the south slope of the Repetto Hills and along the east bank of the Los Angeles River have exposed clean sands and gravels which are apparently an upper member of the Exposition aquifer.

The maximum thickness of the Exposition aquifer is 100 feet. Lines of equal thickness of the aquifer, including interbedded fine materials as well as the permeable zones, are shown on Plate 11.

Stratigraphically, the Artesia and Exposition aquifers lie above the Gage aquifer, described subsequently, and are generally deeper than the Gaspur aquifer, although some of the upper coarse members abut directly into the Gaspur aquifer and may be of the same age. At Boyle Heights and other places, the Artesia and Exposition aquifer have been uplifted and are now higher in elevation than the adjacent Gaspur aquifer. Lower members of the Exposition continue beneath the Gaspur aquifer and merge laterally with the Artesia aquifer. The Exposition aquifer merges with the underlying Gage aquifer approximately three miles northwest of downtown Los Angeles and also in the triangular area between the easterly and westerly arms of the Gaspur aquifer on the Montebello Plain,as shown on Plate 12, "Lines of Equal Elevation on the Base of the Gage and Gardena Aquifers".

The Potrero fault is the only known structure that displaces the Exposition aquifer. However, both the Artesia and Exposition aquifers have been affected by folding and show slight warping near the Newport-Inglewood uplift and in the downwarped area of the Central Basin.

Gage Aquifer. The basal or lowest member of the Lakewood formation is termed the Gage aquifer. The name "200-foot sand" was applied to this aquifer by Poland, et al (1948 and 1959a), later by Richter (1950) and in the "Report of Referee", (Calif. D.W.R. 1952a). Originally the designation of the "200-foot sand" was used because the aquifer occurred about 200 feet below land surface in the syncline extending from Inglewood southeasterly through Gardena. In the Central Basin the base of the aquifer varies from 100 to over 350 feet below the surface; consequently the term "200-foot sand" is inapplicable. The lowest elevation this aquifer attains is in the vicinity of Lynwood, where an elevation of 350 feet below sea level occurs. The Gage aquifer extends over most of the Coastal Plain of Los Angeles County, although insufficient data is available to verify its extension beneath the Santa Monica Plain. Contours on the base of the aquifer are shown on Plate 12.

The composition of the Gage aquifer varies from a fine to medium sand with variable amounts of gravel, sandy silt, and clay in the West Coast Basin, to a coarse yellow sand and minor gravel (two to four inches in diameter) in the center of the Central Basin, and to a fine yellow sand and gravel toward the Whittier Narrows region. The thickness varies from 10 feet to a maximum of 160 feet in the Torrance area. The thickness of the aquifer is shown on Plate 13, "Lines of Equal Thickness of the Gage and Gardena Aquifers".

Deposits that comprise this aquifer are of both marine and continental origin. Along the northerly boundary of the Central Basin, that is, along the base of the Santa Monica Mountains and the Elysian and Repetto Hills, the deposits appear to be continental in origin. In the southeastern half of the coastal plain the aquifer consists mainly of mixed continental and marine, or in some areas, solely marine sediments.

Subsurface structures which either cut the aquifer or against which the aquifer terminates are shown on Plate 12. Areas where the aquifer is merged with overlying aquifers are also shown on this plate.

While this aquifer generally consists of sand, wells have been perforated in it only in areas where coarser materials exist. Approximately 200 wells have been drilled into the Gage aquifer in the West Coast Basin in the vicinity of Gardena but it is unimportant as a producing aquifer in other areas.

Gardena Aquifer. In 1950 Richter described the coarse deposits comprising this aquifer within the West Coast Basin under the term "Gardena Water-bearing Zone". In "Report of Referee" (Calif. D.W.R. 1952a) the description of the Gardena Water-bearing Zone was further elaborated. In the present investigation the extent of the Gardena water-bearing zone in the Central Basin was determined and these deposits have been designated the "Gardena aquifer". This term now applies to all of the coarse deposits that are contemporaneous with the Gage aquifer (fine grained deposits) in both the Central and West Coast Basins.

The Gardena aquifer extends inland from Redondo Beach beneath the City of Gardena, across the Newport-Inglewood uplift and into the Central Basin, where it loses its identity near Lynwood. Further inland, identical coarse deposits are again discernible underlying the Montebello Plain and within the Whittier Narrows. These two areas, however, are separated by the Gage aquifer which underlies that part of the Central Basin where the water-bearing deposits are deepest. In the western part of the coastal plain, the deposits form a strip one to four and one-half miles wide extending from Lynwood to the coast. Other coarse deposits, believed to be at the same stratigraphic horizon, extend southwesterly from the Whittier Narrows and then form two southeasterly trending lobes. One lobe reaches the area south of downtown Los Angeles and the Elysian Hills, and the other extends along the south side of the Santa Fe Springs Plain to the vicinity of Norwalk. The extent of these deposits is shown on Plate 12.

The lithology of the Gardena aquifer in the West Coast Basin is given by Richter (1950) as coarse sand and gravel with discontinuous lenses of sandy silt and yellow to blue clay, with the gravel sizes ranging from pea-size to cobbles three to four inches in diameter and the sand ranging from fine to coarse. Deposits in the Central Basin also contain coarse sands and gravels, with minor lenses of sand, silty clay, and clay. The deposits are similar in thickness and elevation to those of the Gage aquifer and are in direct continuity with the Gage materials. According to Richter (1950), the thickness within the West Coast Basin varies from 50 to 75 feet between the Avalon-Compton fault and the City of Gardena; from 75 to 100 feet west of Gardena, and is over 100 feet where it overlaps the merged Lynwood and Silverado aquifers near the coast. The present study indicates that the Gardena aquifer varies in thickness from 40 feet near Lynwood to 100 feet near Gardena and increases to 160 feet northwest of Torrance. Lines of equal thickness are shown on Plate 13.

As shown on Plate 12, the lowest elevation of the base of this aquifer is 350 feet below sea level in the Central Basin and 200 feet below sea level in the West Coast Basin. On the Newport-Inglewood uplift, as well as in the merged area near the coast, the elevation of the base is 100 feet below sea level.

Richter (1950) indicated that this aquifer was one of fluvial origin since the alignment over the Newport-Inglewood uplift was narrow and perpendicular to probable ancient shore lines; furthermore, these deposits are similar to other Recent alluvial deposits in Dominguez and other Gaps. However, Poland (1959a) suggested that this coarse deposit may have been laid down beyond a shore line fringing the Newport-Inglewood uplift. Work in conjunction with this investigation, however, leads to the same conclusion outlined by Richter.

Some ancestral river flowing southwesterly incised a channel across the Newport-Inglewood uplift and eroded away most of the sediments comprising the Gage aquifer ("200-foot sand"). In this channel coarse fluvial deposits were laid down during a subsequent rise of sea level. Coastward from the uplift some shells have been found in wells drilled in this aquifer suggesting that fluvial action may have been affected by shallow lagoons or estuaries. From further study conducted during this investigation, it appears that the Rio Hondo-San Gabriel River systems have been the principal transporting agencies for sediments comprising the Gardena aquifer. However, because the two inland lobes of the Gardena aquifer extend parallel to the inland foothills there is a possibility that the Los Angeles River may have deposited portions of it.

In the Whittier Narrows, the Gardena aquifer is cut by the Rio Hondo fault shown on Plate 7, and it has been folded up to 11 degrees along the edge of the area near Boyle Heights. Recent uplift along the crest of the Rosecrans anticline has arched the Gardena aquifer, and this is shown on Plate 12 by contours plotted of the base of the aquifer.

The Gardena aquifer has yielded large quantities of water to wells. Because of its coarse texture and continuity, it is an important aquifer in the coastal plain. It is in hydraulic continuity with the Gage aquifer throughout most of its extent and for this reason the isopachs (lines of equal thickness) and elevation contours are plotted on the same maps as the Gage aquifer.

San Pedro Formation. The San Pedro formation has previously been defined to Poland, et al (1945, 1948, 1956, 1959a), as "that stratigraphic unit underlying the unnamed upper Pleistocene deposits and overlying the Pico formation of the late Pliocene age..... Essentially, the San Pedro formation embraces all strata of lower Pleistocene age." Richter (1950) defined the San Pedro formation as "all of the deposits of lower Pleistocene age which underlie West Basin." The original type section of the San Pedro formation contained San Pedro sand, Timms Point silt, and Lomita marl; however, Poland has stated that the San Pedro formation "includes some strata that are younger and may include some that are older than any exposed in the type section cited."

Eckis, (Calif. D.W.R., 1934) used the term "Fernando Group" for the lower Pleistocene and upper Pliocene strata that occurs along the inland foothills of the coastal plain. Since this term included the upper Pliocene deposits, not considered important fresh-water-bearing sediments, the designation "San Pedro formation" is used in this report for the heterogeneous materials comprising the lower Pleistocene horizons.

The San Pedro formation underlies most, if not all, of the Coastal Plain of Los Angeles County as well as portions of the Santa Monica and San Pedro shelves offshore. In the type section along the north flank of the Palos Verdes Hills the San Pedro formation is composed of stratified sand with some beds of fine gravel, silty sand, and silt. Crossbedding occurs frequently in the outcrop. Some pebbles of limestone, siliceous Miocene shales and schist are also found. Away from the Palos Verdes Hills the percentage of granitic fragments increase. In 1950, Richter described the lithology of the San Pedro formation as it occurs in West Coast Basin as "gray sand, which weathers brown or reddish brown on exposure, and interbeds of small gravel are characteristic. Sand and gravel fragments are mainly granitic, indicating a common source area, probably the San Gabriel Mountains". Fine-grained members are generally marine type, blue to black clays, sea muds, or quicksand with abundant shells. The Anchor silt found in the Cheviot Hills (Rodda, 1957) is one of these members. It is correlative with the Timms Point silt, of lower Pleistocene age, and to the lower part of the San Pedro formation. The Coyote silt found in the Coyote Hills (Hoskins, 1954) is also of lower Pleistocene age and resembles the Anchor silt.

The thickness of the San Pedro formation is about 1050 feet beneath the Downey Plain along the South Gate-Santa Ana Depression, and increases to a maximum of 1350 feet in the area about two miles east and southeast of Norwalk along the Norwalk synclinal axis. Where section C-C'-C" (Plate 6b) crosses the Rosecrans anticline, the thickness is 570 feet. Within the West Coast Basin the thickness is greatest along the Gardena syncline, varying from 400 feet about 1 1/2 miles west of Inglewood to 500 feet 1 mile north of Hawthorne, 700 feet at Gardena, and to as much as 1050 feet near the intersection of Carson and Alameda Streets.

The San Pedro formation crops out along the south side of the Repetto, Merced, and Puente Hills; on the Coyote Hills, Baldwin Hills, and Beverly Hills; along the north side of the Palos Verdes Hills; and on Signal Hill. Around the margins of the coastal plain, the San Pedro formation is upturned, and in some local areas is beveled and capped by younger strata.

Most of the structures encountered within the area of study affect at least part of the San Pedro formation. Elevation contour maps on the bases of the aquifers that comprise this formation indicate which fault or faults displace the aquifers. Much folding and warping, along with erosion, also has affected many of the aquifers. The structures affecting the San Pedro formation will be discussed in the descriptions of individual aquifers to follow.

On Plate 3 the San Pedro formation, where it appears at the ground surface, is represented by the symbol "Qsp". Although the formation is shown as one unit for convenience, it has been divided into various stratigraphic units or members. Only those members capable of storing or conveying ground water in suitable quantities have been named as aquifers, while the intervening finer-grained zones were not named. In downward succession, excluding the fine-grained interbedded layers, the aquifers are: The Hollydale aquifer, the Jefferson aquifer, the Lynwood aquifer ("400-foot gravel"), the Silverado aquifer, and the Sunnyside aquifer. Since most of the important aquifers used for production within the coastal plain are contained within the San Pedro formation, their complex water-bearing characteristics are discussed in Chapter VI rather than in the following description.

Hollydale Aquifer. The uppermost aquifer within the San Pedro formation is named the Hollydale aquifer. Although discontinuous in extent, it reaches from the Newport-Inglewood uplift north and northeastward to the south line of the Elysian, Repetto, Merced, and Puente Hills, and eastward and southeastward to and beyond the Los Angeles-Orange County line. Plate 14, entitled "Lines of Equal Elevation on the Base of the Hollydale Aquifer", shows the sinuous irregular courses of this aquifer.

The lithology of this aquifer is variable and consists of yellow sands and gravels (pea-size to two inches) in the northeastern portion of the area, while grey, blue, and black sands, with muds, clays, and marine shells become more predominant toward the Newport-Inglewood uplift. Well log reports are the only means of determining the lithology for this aquifer because it does not crop out on the surface. The well logs indicate that some of the marine sands are mushy, while others are cemented and hard.

The irregular, sinuous, and meander-like courses of the aquifer suggests a stream deposition, but the lithology of the aquifer over three-fourths of the area indicates shallow marine deposition. Because the two main lobes of the aquifer open toward the Los Angeles and Whittier Narrows, it is assumed that streams flowing through these two narrows have controlled the deposition of those parts, while a part of the sediments were laid down beneath shallow water in lagoons or estuaries.

Lines of equal thickness of this aquifer are shown on Plate 15, "Lines of Equal Thickness of the Hollydale Aquifer". The thickness varies from less than 10 feet to a maximum of 100 feet near Lakewood.

In stratigraphic position the Hollydale aquifer is the first important aquifer beneath the Gage-Gardena aquifers. The Hollydale aquifer is overlain and underlain, in most areas, by fine-grained members or aquicludes of the San Pedro formation. Elevation contours on the base of the Hollydale aquifer and areas of mergence with overlying aquifers are shown on Plate 14. The aquifer attains its greatest depth at an elevation of 500 feet below sea level about two miles east of Compton. In the area between the towns of Norwalk and Bellflower, the depth is about 450 feet below sea level. The slope of the base of the Hollydale aquifer is generally toward these two areas of greatest depth.

Upfolding along the Newport-Inglewood uplift has apparently limited the depositional area of the Hollydale aquifer to the Central Basin. Within the Central Basin the aquifer does not exist in upfolded areas. Downfolding along the axis of the Paramount and Norwalk synclines has, however, placed the base of the aquifer at an elevation of 500 feet below sea level.

This aquifer apparently does not yield large quantities of water to wells, therefore few wells are perforated in this interval and even then only when producing horizons above and below are also perforated. Low productivity of the Hollydale aquifer may be due to the fineness of the materials of which it is composed and the lack of continuity in its extent.

Recharge of the Hollydale aquifer can be accomplished only where it merges with the overlying Gage or younger aquifers (Plate 14) because of the absence of outcrop areas.

Jefferson aquifer. Within the Central Basin, the second aquifer in downward succession within the San Pedro formation is designated the Jefferson aquifer. This aquifer extends over most of the Central Basin, although it is not known to reach the surface. Lobes of this aquifer extend into the Whittier Narrows, into the La Brea Plain, and south of the Coyote Hills through Buena Park into Orange County. Within the boundaries of the aquifer, some irregular areas exist where the aquifer has not been identified, as indicated on Plate 16, "Lines of Equal Elevation on the Base of the Jefferson Aquifer". This aquifer has not been located in the West Coast Basin. The Jefferson aquifer occurs in sinous courses extending from both the Los Angeles and Whittier Narrows into Orange County.

The lithology of the Jefferson aquifer is known only from drillers logs of water wells. The sediments comprising this aquifer are, for the greater part, fine-grained. Gravels are most extensive in the Whittier Narrows but also occur in scattered patches through the rest of the Central Basin. The remainder of the aquifer consists primarily of sand with some gravelly and clayey lenses.

From the pattern of distribution of sediments comprising this aquifer, source areas are assumed to have been the San Fernando and San Gabriel Valleys and their surrounding highlands. The Los Angeles and San Gabriel Rivers appear to have transported the material through the Los Angeles and Whittier Narrows into or through three possible areas: the La Habra Piedmont slope, the Buena Park area, and southward toward Seal Beach. Extensions of these areas into Orange County have not been determined.

The thickness of the Jefferson aquifer is shown on Plate 17, "Lines of Equal Thickness of the Jefferson Aquifer", and varies from a few feet to a maximum of 140 feet along the Los Alamitos fault. At Norwalk the Jefferson aquifer is 120 feet thick. The Jefferson aquifer has been considerably folded and its base varies in elevation from 700 feet below sea level to 50 feet above sea level.

Structures that affect the Jefferson aquifer are the Los Alamitos, Rio Hondo, Pico, and Cherry Hill faults, and possibly the Seal Beach fault.

It is believed that the general upwarped area along the Newport-Inglewood uplift has controlled or confined to the Central Basin the deposition of sediments comprising this aquifer.

Although it does not crop out on the surface, the Jefferson aquifer does merge with the overlying Hollydale aquifer and also with the Gage aquifer along the Elysian Hills, Repetto Hills, and within the Whittier Narrows. These areas of mergence are shown on Plate 16.

Artificial recharge within the Whittier Narrows would have some effect on this aquifer. Since less than 10 percent of the wells in the Central Basin are perforated in this horizon, and then only in areas where coarse sandy and gravelly zones are found, it is not considered an important water producing aquifer.

Lynwood Aquifer. The Lynwood aquifer is the term used for the third aquifer in stratigraphic sequence within the San Pedro formation. The term "400-foot gravel" has been applied to this aquifer in the West Coast Basin. This latter term was first used by Poland (1948) and defined as "a distinct water-bearing zone in the upper part of the San Pedro formation .... its base is about 400 feet below land surface along the axis of the syncline" (southwest of the Newport-Inglewood uplift). Plate 18, "Lines of Equal Elevation on the Base of the Lynwood Aquifer", and Plate 19, "Lines of Equal Thickness of the Lynwood Aquifer" show the extent, elevation of the base, and thickness of this aquifer.

The Lynwood aquifer extends throughout the Central and West Coast Basins and its existence has been verified in the Hollywood Basin. There is no evidence to show that it exists in the Santa Monica Basin, nor has it been identified in the Baldwin Hills.

Materials of which the Lynwood aquifer is composed appear to be both continental and marine in origin. Continental deposits, of yellow, brown, and red coarse gravels, sands, silts, and clays, are found in the vicinity of the Montebello Forebay Area. A line bounding this area extends from the Whittier Narrows to Bellflower, thence to Compton, South Gate, Huntington Park, and back to the Whittier Narrows. One arm of continental sediments extends from the area just described toward Hawthorne. Sediments of the Lynwood aquifer surrounding the Montebello Forebay Area are mostly marine deposits and are characterized by sand and gravel and blue, grey, and black silts and clays. Some of the sands and gravels have been cemented. The several areas where the marine deposits consist predominantly of fine-grained materials vary from less than 100 acres to about six or seven square miles in extent, and are shown on Plate 19.

From the study of well logs and the materials from wells drilled into this aquifer, it appears that the Rio Hondo and San Gabriel River systems have been the major contributing source for the continental sediments. Marine-type deposits appear to have been laid down when the area was covered by shallow seas.

The Lynwood aquifer ranges from less than 50 feet to about 200 feet in thickness near Wilmington, as shown on Plate 19. Near Lakewood, Torrance, Inglewood, and Montebello it is about 150 feet in thickness. The base contours and lines of equal thickness are not shown west of the Gardena syncline because of mergence with the Silverado aquifer.

In stratigraphic sequence the Lynwood aquifer is overlain and underlain in most of the area by fine-grained materials such as clays, silts, and sandy and silty clays. It is beneath the Jefferson aquifer and above the Silverado aquifer. Known areas of mergence with the overlying aquifers are shown on Plate 18, while the areas of mergence with the Silverado aquifer are shown on Plate 20, "Lines of Equal Elevation on the Base of the Silverado Aquifer".

Folding has been the primary structural factor affecting the Lynwood aquifer. Upfolding or upwarping has occurred along the coast in the West Coast Basin, over the Newport-Inglewood uplift, in the Artesia area over the Santa Fe Springs uplift, along the edge of the Elysian, Repetto, and Puente Hills, and within the Whittier Narrows. Downwarping has affected the aquifer in the Hawthorne-Long Beach depression extending to San Pedro, within the South Gate-Santa Ana depression (includes Paramount and Norwalk synclines), and within the La Habra syncline. Within the West Coast Basin the Charnock fault has offset the Lynwood aquifer. Along the Newport-Inglewood uplift, the Inglewood, Potrero, Avalon-Compton, Cherry Hill, Northeast Flank, and other associated transverse faults cut the aquifer. Within the Central Basin the Los Alamitos fault offsets the Lynwood aquifer as does the Rio Hondo and Pico faults within and south of Whittier Narrows.

The Lynwood aquifer is an important producer of ground water and is discussed in more detail in the descriptions of the ground water basins in Chapter VI. Most wells in the coastal plain drilled to or below this aquifer are perforated in it. Yields of wells perforated only in the Lynwood aquifer vary from 200 to 2100 gallons per minute.

Surface and subsurface flow of water through the Whittier Narrows moves downward through the shallow aquifers into the Lynwood aquifer. Water is also artificially spread in shallow pits below the Whittier Narrows where the Lynwood aquifer is in contact with the permeable materials extending upward into the pits, thus permitting this water to reach the Lynwood aquifer. This artificial method of recharging is not generally applicable in other areas where the Lynwood aquifer is merged with the overlying aquifers because of the greater depth of those aquifers as well as the Lynwood aquifer below the surface, the lack of continuous permeable materials to conduct water vertically downward, and the lack of available space for large surface pits. In these areas, therefore, other methods of recharge would be necessary, such as injection wells drilled into and perforated in this aquifer.

Silverado Aquifer. The Silverado aquifer is the name applied in this report to those water-bearing materials which are stratigraphic equivalents of the "Silverado Water-Bearing Zone" in the West Coast Basin. Originally named by Poland, et al (1956), from its typical occurrence in a well in Silverado Park, Long Beach, the Silverado Water-Bearing Zone has been found throughout the rest of the Coastal Plain of Los Angeles County and extends across the Los Angeles County line into Orange County. For the purpose of this report the term, "Silverado aquifer", will apply to these materials throughout the Coastal Plain of Los Angeles County. Areas of Pleistocene deposits occurring in the Santa Monica and San Pedro shelves offshore may be continuations of the Silverado and underlying Sunnywide aquifers. Plate 20 shows the known extent and elevation contours of the base of the Silverado aquifer.

Sediments comprising the Silverado aquifer are both continental and marine. Where continental deposits predominate, yellow to brown, coarse to fine sands and gravels are interbedded with yellow to brown silts and clays. Marine deposits which comprise the Silverado aquifer over the remainder of the basin are primarily blue to grey sand, gravel, silt, and clay. Some black sands, quicksand, marine shells, peat, and wood fragments are also shown on drillers logs of wells located in the area of marine sediments. In the West Coast Basin, Richter (1950) describes the lithology as fine to coarse, blue-black arkosic sand with the larger grains composed of granite, granodiorite, and diorite. Along the flanks of the Palos Verdes Hills, limestone and schist pebbles are abundant, while in the Ballona Gap area slate, schist, and volcanic pebbles are commonly found.

The ancestral Rio Hondo and San Gabriel River systems have been the major transporting agent for materials comprising the continental portion of the Silverado aquifer in Central Basin, although some contributions may have been added by the Santa Ana River flowing in one of its earlier courses. The regional evidence indicates that the Los Angeles River did not flow into the coastal plain during much of the lower Pleistocene time and probably did not contribute sediment to the Silverado aquifer. However, streams flowing from the Santa Monica Mountains, Elysian Hills, and Palos Verdes Hills have added debris from these areas. Much of this material was deposited beneath the shallow ocean that covered the coastal plain at this time. The continental deposits appear to have been laid down when the sea was retreating from the coastal plain.

The varying thickness of the Silverado aquifer is depicted on Plate 21, "Lines of Equal Thickness of the Silverado Aquifer". This aquifer reaches a maximum thickness of 500 feet between the Wilmington anticline and the Cherry Hill fault. One mile west of Lakewood, along Carson Street, the Silverado aquifer is 450 feet thick. Along the south side of the Santa Fe Springs Plain and also two miles southeast of Huntington Park it is 300 feet thick.

The maximum depth reached by the base of the Silverado aquifer, 1200 feet below sea level, is found southwest of the Cherry Hill fault within Dominguez Gap, along the north side of the Los Alamitos fault, and about three miles southeast of Norwalk. A depth of 1100 feet below sea level occurs near Long Beach Harbor.

The Silverado aquifer crops out along the northeast flank of the Palos Verdes Hills, possibly on the continental shelf beneath Santa Monica Bay, along the southern margin of the Baldwin Hills, in the Repetto and Merced Hills, along the south slope of the Puente Hills, and possibly in the Coyote Hills. Outcrops in the areas named are shown as the San Pedro formation, Qsp on Plate 3, because insufficient data are available to definitely identify the aquifer involved.

Areas where the Silverado aquifer merges with overlying aquifers are shown on Plate 20. In the Montebello Forebay Area and Whittier Narrows the Silverado aquifer is directly overlain by and merges with aquifers younger than the Lynwood aquifer. Merged areas are irregular in extent but are generally found along the Newport-Inglewood uplift, in the area from Huntington Park to Santa Fe Springs, and also within the Whittier Narrows. In the West Coast Basin the Silverado is merged with the overlying Lynwood aquifer everywhere except beneath the Gardena syncline and the Wilmington anticline. Near Santa Monica Bay the Silverado aquifer is in hydraulic continuity with the Gardena and Gage, as well as the Lynwood aquifers. In the Montebello Forebay Area the Silverado aquifer merges with the overlying Lynwood, Jefferson, Hollydale and Gardena aquifers, as delineated on Plate 20A.

The Silverado aquifer has suffered a greater degree of folding than the overlying Lynwood aquifer. It has been deformed by all of the major anticlinal and synclinal folds. All the major faults shown on Plate 3 seem to have affected this aquifer. After faulting occurred, the aquifer may be found at either different or the same elevation but separated by a region of altered permeability. Sufficient data is lacking to determine whether the geologic structure just south of Santa Fe Springs is a fault or downfold. On the basis of the data available it is believed that the postulation of a sharp downfold would explain the existing structure in a more adequate manner than the assumption of a fault.

This aquifer is one of the most important ground water producers in the coastal plain. Specific capacities of wells perforated in it range up to a maximum of 159 gallons per minute per foot of drawdown and yields range up to 4700 gallons per minute.

In the Whittier Narrows the Silverado aquifer is merged with many overlying aquifers and recharging the shallow aquifers in that area would cause additional water to reach the Silverado aquifer. Recharge from the surface in the Los Angeles Forebay Area may also reach the Silverado aquifer where it is truncated by the Gaspur. Other possible recharge areas for the Silverado aquifer are in the outcrop along the Coyote and Baldwin Hills, or in the Ballona Gap, where the Silverado aquifer is directly beneath the Ballona aquifer and close to the surface. Natural recharge takes place in those areas shown on Plate 3 where the San Pedro formation crops out on the surface.

Sunnyside Aquifer. The water-bearing materials occurring within the Central Basin beneath the Silverado aquifer but above the Pico formation have been termed the "Sunnyside aquifer" after a typical occurrence illustrated by the log of a well located in Sunnyside Cemetery in North Long Beach.

The Sunnywide aquifer extends throughout the Central Basin. Its extent and elevation of its base are shown on Plate 22, "Lines of Equal

Elevation on the Base of the Sunnyside Aquifer". Recent drilling along the coastal region from Palos Verdes Hills to Ballona Escarpment has revealed a zone of coarse deposits approximately 500 feet thick occurring beneath the Silverado aquifer, but separated from it by silts and clays. These coarse materials are similar to the Sunnyside aquifer in the Central Basin and may be the extension of the Sunnyside aquifer in the West Coast Basin.

The materials comprising this aquifer are coarse-grained sands and gravels separated by fine-grained interbeds of sandy clay and clay. The lithology shown on a typical well log near the intersection of Del Amo and Cherry Streets is compacted blue sand, coarse blue gravel (up to four inches in diameter), hard blue sandy clay, and clay. Toward the Los Angeles-Orange County line, mushy blue sands and coarse gravels with greater amounts of blue clay are found. At Spring Street and Bloomfield Avenue, well logs indicated that instead of clay, fine blue sand with minor clay streaks was present. Along the center of the coastal plain, about one mile north of Manchester and near Alameda Avenue, fine to medium gravel (one quarter to one inch in diameter), and partly cemented blue clay, and grey to brown shale are typical materials. In Whittier Narrows hard grey sands and gravels, boulders, and blue sandy shale are present.

From drillers descriptions of materials, it is believed that the aquifer is of marine origin and has been affected very little by weathering. Many well logs show marine shells included with the sediments in addition to the interbedded marine-type clays and shales.

The Sunnyside aquifer attains its maximum known thickness of about 300 feet about one to one and a half miles southeast of Maywood in the vicinity of Slauson Avenue and the Long Beach Freeway. Plate 23, "Lines of Equal Thickness of the Sunnyside Aquifer", gives the thickness of the

Sunnyside aquifer. No data is available to determine thickness in the central downfolded area because none of the water wells have reached the aquifer in this area.

It is not definitely known whether the Sunnyside aquifer crops out in any particular location within the Central Basin; however, it is assumed that some of the outcrop areas shown as the San Pedro formation on Plate 3 include the Sunnyside aquifer also. The most likely areas for this to occur are along the south slope of the Repetto, Merced, and Puente Hills, and especially on the top of the Coyote Hills.

In stratigraphic position the Sunnyside aquifer is overlain by the fine-grained Timms Point silt and Lomita marl and underlain by the Pico formation. It may be correlated in age with the unit mapped by Hoskins (1954) as the Coyote silt, the Anchor silt of Rodda (1957), and the La Habra conglomerate of Eckis (Calif. D.W.R., 1934).

Structurally, the Sunnyside aquifer is offset by most, if not all, of the faults within the Central Basin. Some of the faults appear to act as boundaries for the aquifer. Northeast of the Los Alamitos fault the base of the Sunnyside aquifer occurs at a maximum depth of about 1500 feet below sea level.

The Sunnyside merges with the Silverado and other overlying aquifers in many areas delineated on Plate 22, "Lines of Equal Elevation on the Base of the Sunnyside Aquifer". In these merged areas hydraulic continuity is possible through a series of aquifers to the surface. The only known areas where this aquifer may be recharged are limited to outcrops of the San Pedro formation and merged areas where folds have lifted the Sunnyside aquifer near the surface of the ground.

Yields of wells perforated in this aquifer range up to 1500 gallons per minute. Specific capacities of known wells using only this aquifer for production are only fair, ranging from 6 to 25 gallons per minute per foot of drawdown.

Undifferentiated Plio-Pleistocene Sediments

An area of sediments of either Pliocene or Pleistocene age, or possibly both, is shown on Plate 3 in the Repetto Hills southeasterly of Monterey Park. In the geologic literature these sediments have been classified variously as both Pliocene and Pleistocene. Although various fossils are present, age designation based upon them is uncertain. While these sediments are somewhat permeable they have relatively little significance as far as ground water in the coastal plain is concerned; therefore, no attempt was made to determine their age.

These undifferentiated sediments consist of thin bedded to massive silts, sands, and gravels that are locally well indurated and contain limited marine fossil remains. The sediments have been folded and many minor faults and fractures are seen in outcrops.

Although these sediments are considered to be relatively unimportant as far as ground water is concerned, a drainage well constructed in 1959 reportedly yields fair quantities of good quality water. Firm conclusions, however, cannot be drawn from this limited experience.

Tertiary System

Aquifers have not been differentiated in sediments and rocks older than Pleistocene age because of limited well log data. Few wells extend into these materials and little ground water of suitable quality is extracted from them. Some fresh water is now being extracted from the upper member of the Pico formation, discussed first in this section. For pre-Pleistocene materials in general, the sediments and rocks are described by formations or broad age classification.

<u>Pliocene Series</u>

The Pliocene series is divided into two formations, the Pico formation and the Repetto formation. In addition, the Pico formation is divided into upper, middle, and lower divisions.

<u>Pico Formation.</u> The Pico formation is shown, where it outcrops at the surface, on Plate 3 by the symbol "P_p". The upper division or upper member of the Pico formation is a potential source of ground water. It has not been exploited to date, though wells along Carson Street near Lakewood do obtain water from upper Pico aquifers. This member is thickest in the synclinal areas, and it outcrops on the hills surrounding the coastal plain.

The upper Pico formation is generally composed of sand, silt, and clay of marine origin interbedded with marine gravels. Beds of gravels and sands range in thickness from 20 to 100 feet and are separated by beds of micaceous siltstone and clays.

Unconformably beneath this upper member are the middle and lower members of the Pico formation, or in some areas, the Repetto formation. The middle and lower divisions of the Pico formation are differentiated from upper Pico sediments by the contained foraminiferal faunas. Lithologically, the middle and lower divisions are composed of greenish-grey micaceous siltstone and fine to coarse light grey feldspathic sandstone interbedded with claystone and shale. The thickness of these lower division materials ranges from 400 to more than 2,000 feet. Throughout most of the coastal plain these rocks are far below the depths reached by the deepest water wells. Oil well data indicate that, although portions of these sediments may be sufficiently permeable to transmit water in usable quantities, the water is of poor quality and unsuitable for general use.

Repetto Formation. The Repetto formation, of early Pliocene age, is exposed in several areas adjacent to the coastal plain. The outcrops of this formation are identified by the symbol "Pr" on Plate 3. These deposits are composed mostly of siltstone with layers of sandstone and conglomerate, containing fragmental marine shells locally. The Repetto formation is about 5,000 feet in thickness. Wissler (1943) states that the maximum thickness occurs in the Montebello-Santa Fe Springs area. Conrey (1958) and Slosson (1958) confirm this and discuss the distribution and thickness of the Repetto rocks in some detail.

Miocene Series

Rocks of Miocene age are shown on Plate 3 by the symbols "Ms" for sedimentary rocks and "Mv" for volcanic rocks. Nomenclature of the sediments of Miocene age is somewhat complicated; however, the relationship between the various names and brief descriptions of the various formations are presented in Table 1.

Sedimentary Rocks. Sedimentary rocks of middle and late Miocene age have been called the Monterey formation in the Palos Verdes Hills, the Modelo formation in the Santa Monica Mountains, and the Puente formation beneath the coastal plain and in the Repetto and Puente Hills. These formations, up to 11,000 feet thick, consist predominantly of clay shales but siliceous shales, sandstones, and conglomerates are common.

The Topanga formation is of middle and possibly early Miocene age. It is interbedded with and lies below the Miocene volcanic rocks. The formation attains a thickness of 7,500 feet and consists of shale, sandstone, and conglomerate.

No wells are known to produce fresh water from these formations in the immediate area of the coastal plain. However, water wells in other parts of Southern California do obtain limited supplies from hard fractured shales and poorly consolidated sandstones and conglomerates of these formations.

Volcanic Rocks. Calcic andesite flows, tuffs, and breccias underlie at least parts of the coastal plain, and usually contain interbedded marine sand, conglomerate, and shale. Where these materials outcrop on the surface they are identified by the symbol "Mv" on Plate 3. Available data indicate that the fractured sills, dikes, and flows, along with interbedded sand and gravels, yield water to wells, while the conglomerates and agglomerates are relatively nonwater-bearing.

Older Tertiary Sedimentary Rocks

Rocks of Eocene and Oligocene age are missing beneath West Coast Basin, though they may underlie the Central Basin. Hoots (1931) gives some evidence for the presence of the Sespe and Vaqueros formations of Oligocene(?) or early Miocene age in the Santa Monica Mountains. Paleocene rocks crop out in the Santa Monica Mountains and may underlie a part of the coastal plain. Hoots (1931) termed these rocks the Martinez formation. Other exposures of Martinez sandstone and conglomerate were found in the Santa Monica Mountains by Durrell (1954) and others. Outcrops of Eocene and Oligocene rocks are shown on Plate 3 by the symbols "E" and "Ø", respectively, while outcrops of Paleocene rocks are marked by the symbol "E-K".

Cretaceous System

A sequence of Upper Cretaceous sediments within the Santa Monica Mountains are differentiated and have been called the Chico formation by Hoots (1931). Durrell (1954) however, appears to have divided the same sequence into the Chico and Trabuco formations. The symbol "K_s" represents the areas of outcrops of these rocks on Plate 3.

Quartz dioritic intrusive rocks, shown by the symbol "K_g" on Plate 3 have previously been assumed to be Jurassic by comparison with similar rocks in the Sierra Nevada (Durrell, 1954). On the basis of dating by lead-alpha activity ratios of intrusive rocks in Southern California, Larsen, et al (1958) suggests that these rocks are of an early Late Cretaceous age rather than Jurassic.

Jurassic System

Rocks, called the Catalina schist, crop out on the Palos Verdes Hills and are identified on Plate 3 by the symbol "J". These have been also referred to as the Western bedrock complex because they underlie Miocene rocks of the West Coast Basin. The age of these schistose rocks is questionable and, according to Woodford, et al (1954), may be either Mesozoic (when compared to the Jurassic Franciscan formation of the coast ranges) or Precambrian (when compared with the Pelona schist of the San Gabriel Mountains). In this report they are mapped as Jurassic.

Triassic System

Metamorphosed black shale and sandstone crops out in the Santa Monica Mountains and have been called the Santa Monica slate (Hoots, 1931) and the Santa Monica formation (Durrell, 1954). Intrusion of these rocks by the quartz dioritic magma was responsible for changing these rocks into grey to black slates, mica schists, and spotted slates. These rocks are dated as Triassic by comparison with similar rocks of Triassic age in the Santa Ana Mountains. In the coastal plain, these are presumably the oldest rocks known, although the Cataline schist mentioned under the Jurassic System may possibly be older. These Triassic rocks are identified on Plate 3 by the symbol "T_R".

CHAPTER VI. DESCRIPTION OF GROUND WATER BASINS

This chapter describes the ground water basins in the Coastal Plain of Los Angeles County and discusses the occurrence and movement of ground water within each basin. Information regarding geologic features presented in earlier chapters is summarized here for each ground water basin to show what effect these features have on ground water flow into, through, and out of each basin. The relationships between the geologic features and the occurrence and movement of ground water as discussed in this chapter are intended to clarify the geologic setting of the area for future studies of hydrology, water quality, and problems involving the use of ground water.

Basin Boundaries

The ground water basin as herein used is defined as the area underlain by one or more permeable formations capable of furnishing a substantial water supply. It does not necessarily coincide with the surface drainage basins and is usually smaller in size because the essentially nonwater-bearing hills and mountains of the surface drainage basin (watershed) are excluded. Ground water basins are separated from adjacent basins by geologic features such as nonwater-bearing rock, faults, or other geologic structures which impede ground water movement, and by natural or artificial mounds or divides in the water table or piezometric surface. Geologic features generally establish well defined, fixed boundaries while ground water mounds are subject to change in time, particularly with changes in the development and use of ground water. However, both of these types of boundaries do define limits of ground water movement.

Central Basin

The Central Basin extends over most of the Coastal Plain of Los Angeles County east and northeast of the Newport-Inglewood uplift (Plate 2). It is bounded on the north by the Hollywood Basin and a series of low hills extending from the Elysian Hills on the northwest to the Puente Hills on the southeast. Where the Los Angeles and Whittier Narrows break the otherwise continuous line of hills, the Central Basin is separated from the ground water basins to its north by arbitrary lines. The Central Basin is bounded on the west and south by the Newport-Inglewood uplift and on the southeast by the Los Angeles-Orange County line. All of these boundaries do not coincide with the ones defined in earlier reports. In Bulletin No. 8 (Calif. D.W.R. 1952c) the Central Basin included the area referred to in this report as the Hollywood Basin. The present Central Basin includes part of the area formerly known as the Los Angeles Narrows Basin, and the Whittier Area which was formerly the western part of the La Habra Basin.

The Central Basin was historically divided internally into three areas (Calif. D.W.R. 1934): the Los Angeles and Montebello Forebay Areas and the Central Basin Pressure Area. This division is shown on Plate 2. The forebay areas have been described as intake areas (areas of free or unconfined ground water) where substantial infiltration of surface water could occur. In the pressure area, the aquifers were pictured as being confined between relatively impervious layers of considerable lateral extent that restricted percolation of water from the ground surface downward to the underlying aquifers. This investigation has shown that such a simplified division is not possible because aquicludes were found to extend into the so-called forebay areas and the pressure area aquicludes were found locally to contain large amounts of sandy and gravelly clay and silts where considerable deep percolation could occur. The area of essentially unrestricted percolation of surface waters to the underlying ground water is limited to small areas in the vicinity of the Los Angeles and Whittier Narrows (Plate 9A). These areas are considerably smaller in extent than the historically defined Los Angeles and Montebello Forebay Areas. However, in large portions of the remainder of the basin, including the pressure area, the upper aquiclude is only partly effective in restricting downward percolation. Because of the heterogeneous pattern of these relatively permeable areas in and around the more impermeable aquicludes and the general gradation from one to the other, an attempt to divide the basin into pressure and forebay areas along a definite line for purposes of hydrologic analysis would not only be difficult but would have to be completely arbitrary. Nevertheless, the old delineation of forebay and pressure areas are used in the discussion of the geology of the Central Basin to follow because of their historical significance and descriptive usefulness.

The Central Basin is divided into four parts for descriptive purposes: the Los Angeles Forebay Area, the Montebello Forebay Area, the Whittier Area, and the Central Basin Pressure Area. The Los Angeles and Montebello Forebay Areas are located in the northern part of the Central Basin immediately south of the two breaks in the line of low hills bordering the basin. Through these breaks the Los Angeles River and the Rio Hondo-San Gabriel River systems flow from the valleys to the north into the coastal plain (Plate 2). These forebay areas spread southward from the two narrows in irregular semicircles. The southern boundary of the two forebay areas roughly coincides with the northernmost limit of the line of flowing artesian wells delineated by Mendenhall in 1903. As explained above, these forebay areas are not true forebays in the academic sense of the word but are used herein for descriptive purposes.

The Whittier Area is located in the northeastern part of the Central Basin east of the Montebello Forebay Area, south of the Puente Hills and west of the Orange County line. The Whittier Area was described as part of the La Habra Basin in Bulletin 45 (Calif. D. W. R. 1934). However, since the aquifers present in this area, especially the deeper ones, are interconnected to varying degrees with the aquifers in the Central Basin, the area was renamed and treated as part of the Central Basin.

The Central Basin Pressure Area is the largest of the four divisions of the Central Basin. It encompasses all of the area east and northeast of the Newport-Inglewood uplift and northwest of the Orange County line that is not included in the other three areas. It is called a "pressure area" because the aquifers within it are confined by aquicludes or relatively impermeable layers of clay and silt over most of the area. One of the most important aquicludes is at or near the surface. As noted previously, this near surface aquiclude is missing in local areas and contains zones of relatively more permeable material in many places where water could move into or out of the underlying aquifer. Accordingly, completely confined conditions do not exist in the pressure area.

It should also be noted in this discussion of basin divisions that the pressure area could be further divided on the basis of a ground water mound which has existed in the northwestern portion of the basin since the early 1930's. This mound effectively divides the ground water movement in that portion of the basin into two parts; that which moves northward toward the Hollywood Basin and that which moves southeasterly toward the center of the old pressure area and the Los Angeles Forebay Area. This ground water mound was used in the formulation of a portion of the northern boundary of the Central and West Basin Water Replenishment District organized in 1959 (Calif. D.W.R. 1959).

In the sections which follow, the geologic features of the Los Angeles Forebay Area, the Montebello Forebay Area, the Whittier Area and finally the Central Basin Pressure Area are summarized. For each area these summaries include information about the aquifers present, the areas where these aquifers merge, and barriers to ground water movement. The flow of water into and out of the Central Basin as a whole, replenishment of the aquifers, and areas of free ground water and storage change are described in a separate section under the heading of "Occurrence of Ground Water in the Central Basin".

Geologic Features of the Los Angeles Forebay Area

The Los Angeles Forebay Area, located in the northern part of the Central Basin, is shown on Plate 2. In general it is a free ground water area; however, in the course of this investigation it became evident that the Bellflower aquiclude extends into the southerly portion of the forebay area. The aquiclude in this area contains a high percentage of sand, and vertical percolation of water is apparently more rapid here than in other portions of the basin covered by it. Where the Bellflower aquiclude is missing within the forebay area (see Plate 8A), the aquifers are in direct hydraulic continuity with the surface.

The Los Angeles Forebay Area is overlain by parts of the La Brea, Downey, and Montebello Plains. The known water-bearing sediments extend to

The Sunnyside aquifer also has been identified throughout the Whittier Area. It consists of 200 to 300 feet of sand and gravel with some interbedded clay (Plate 23). It is the lowest of the aquifers identified, reaching a maximum depth of about 1,000 feet (700 feet below sea level, Plate 22). The gravels exposed in the Coyote Hills and along the north side of the area are believed to be surface outcrops of the Sunnyside aquifer.

The Pliocene and Miocene sediments below the San Pedro formation generally contain saline water in this area, but may locally contain fresh water. Plate 24A shows the approximate elevation of the base of fresh water-bearing sediments.

The available data suggest that some of the water-bearing sediments in the Whittier Area may have been faulted. However, the location of such faulting and its effect on ground water has not been determined.

The water-bearing sediments of the Whittier Area comprise part of the generally east-west trending La Habra syncline. The Recent deposits are essentially undisturbed. The Lakewood formation underlying the Recent alluvium is also generally flat-lying, though in some areas it is slightly tilted. The San Pedro formation, however, which unconformably underlies the Lakewood formation, has been folded sharply and its flanks are exposed in the Coyote Hills and on the south side of the Puente Hills. The effects of this unconformity and the outcrops of the moderately dipping San Pedro formation upon the occurrence and movement of ground water will be discussed later.

Geologic Features of the Central Basin Pressure Area

The Central Basin Pressure Area, previously known as the Central Coastal Plain Pressure Area, is overlain by the Downey Plain and parts of the Santa Fe Springs, Montebello, La Brea, and Bouton Plains. The area is generally flat and slopes gently to the south. Water-bearing sediments in the Central Basin Pressure Area range in age from Recent to Pliocene and extend to a probable maximum depth of 2,200 feet northeast of the City of Lakewood. Aquifers have been defined in the Recent alluvium and the Lakewood and San Pedro formations.

In this pressure area the aquifers are confined by many aquicludes, only one of which has been named. This is the near surface Bellflower aquiclude which restricts vertical percolation into the Gaspur and other underlying aquifers. Water levels in the confined area form a piezometric or pressure surface rather than a free ground water surface. As pressures change from aquifer to aquifer, the corresponding piezometric water levels in wells tend to vary according to which aquifer or aquifers are used for production. Also, as the aquicludes vary in extent, configuration, permeability, and thickness, their effectiveness as confining members also changes from place to place and with this change an exchange of water between aquifers may take place, depending on the direction of the pressure gradient.

The Recent alluvium covers most of the Central Basin Pressure Area, and attains a probable maximum depth of 200 feet near the City of Bellflower. It contains the Semiperched aquifer, the Bellflower aquiclude, and the Gaspur aquifer. The Semiperched aquifer consists of sands and gravels 20 to 60 feet thick overlying the Bellflower aquiclude.

The Bellflower aquiclude is found throughout the pressure area and is composed mainly of clay and silt; however, there are numerous areas where it consists mainly of clayey sands and gravels and where its effectiveness as an aquiclude is limited. It ranges from a few feet to 160 feet in thickness (Plate 9A). It extends downward to about 200 feet (140 feet below sea level) southwest of the City of Bellflower (Plate 8A). The Bellflower aquiclude is also present in the Lakewood formation but no effort has been made to define separately the areas where the aquiclude is identified with each age. The Gaspur aquifer extends south from the forebay areas in two separate arms which merge in the vicinity of the City of Lynwood and then extend south along the course of the Los Angeles River to the ocean. The Gaspur aquifer consists of coarse sand and gravel and ranges in thickness from 40 to 100 feet (Plate 11A). The maximum depth of about 190 feet (170 feet below sea level) occurs in the vicinity of Terminal Island in San Pedro Bay (Plate 10B).

The Lakewood formation, of late Pleistocene age, extends over all of the Central Basin Pressure Area. It contains part of the Bellflower aquiclude and the Artesia, Exposition, Gage, and Gardena aquifers. The water-bearing materials immediately underlying the Bellflower aquiclude west of the easterly arm of the Gaspur aquifer are called the Exposition aquifer. The water-bearing materials immediately underlying the Bellflower aquiclude east of this arm of the Gaspur aquifer are called the Artesia aquifer and are believed to be contemporary both in age and mode of deposition with the materials in the Exposition aquifer. The boundary between the Artesia and Exposition aquifers is somewhere in the center of the basin under the Gaspur aquifer. All three aquifers are in hydraulic continuity. Both the Artesia and Exposition aquifers consist of sand and gravel with local areas of interbedded clay. The Exposition aquifer ranges from 20 to over 100 feet in thickness (Plate 11A) and reaches a maximum depth of about 230 feet (120 feet below sea level) southeast of Huntington Park (Plate 10A).

The Artesia aquifer consists of 10 to 140 feet of sand and gravel with some interbedded clays (Plate 11A). It extends down to a maximum depth of 230 feet (220 feet below sea level) southeast of the City of Lakewood (Plate 10A).

The Gage and Gardena aquifers of the Lakewood formation are also considered to be the same age. Their relationship was discussed in this chapter in the section on the West Coast Basin. The Gage aquifer consists of fine-grained sand and silty sand ranging from 5 to 120 feet in thickness (Plate 13A). The maximum depth attained is 380 feet (350 feet below sea level) west of the City of Lakewood (Plate 12A). The Gardena aquifer consists of coarse-grained sand and gravel from 10 to 60 feet in thickness. It extends down to a depth of about 390 feet (350 feet below sea level) near the City of Lynwood. The Gage and Gardena aquifers mark the base of the Lakewood formation and along this base they abut the underlying San Pedro formation unconformably.

The San Pedro formation, present throughout the Central Basin Pressure Area, contains some of the most important aquifers in the area. In all, five aquifers, the Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside, have been delineated.

Two relatively minor aquifers, the Hollydale and Jefferson aquifers, are present in the upper part of the San Pedro formation in the Central Basin Pressure Area. The Hollydale aquifer, uppermost of the two, (Plates 14 and 15) extends over approximately 60 percent of the area. It is mostly sand and silty sand with interbedded clays, though some gravel is found locally. It ranges from approximately 10 to 100 feet in thickness, and the maximum depth of about 570 feet (500 feet below sea level) is reached a few miles east of the City of Compton. The Jefferson aquifer (Plates 16 and 17) is present over only 40 to 50 percent of the pressure area. It is mostly fine-grained sand with scattered lenses of gravel, and ranges in thickness from about 10 feet to over 140 feet. The maximum depth of approximately 720 feet (650 feet below sea level) is found near the Orange County line southeast of the City of Norwalk. Although these two aquifers are not continuous over the entire Central Basin Pressure Area, they are important sources of water in some localities.

Both the Lynwood and Silverado aquifers yield considerable water to wells in the Central Basin Pressure Area. The Lynwood aquifer (Plates 18A and 19A) is composed mainly of coarse-grained sands and gravels, ranging in thickness from less than 50 feet to over 150 feet. The maximum depth of about 1,030 feet (950 feet below sea level) occurs southeast of the City of Norwalk. The Silverado aquifer (Plates 20A and 21A) is composed largely of sands and gravels, ranging in thickness from about fifty feet to over 450 feet. The greatest depth is found north of the City of Lakewood, where its base is about 1,240 feet below the ground surface (1,200 feet below sea level). The base of the Silverado aquifer was thought to correspond to the base of the Pleistocene deposits and of fresh water in the West Coast Basin, where it was first named. In the Central Basin, however, the Sunnyside aquifer has been differentiated below the Silverado aquifer.

The Sunnyside aquifer (Plates 22 and 23) marks the base of the San Pedro formation in most parts of the Central Basin Pressure Area. It varies from about 70 feet to over 500 feet in thickness and consists of sand, and sand and gravel. The maximum depth of about 1,700 feet (1,660 feet below sea level) occurs east of the City of Lakewood.

Below the Sunnyside aquifer is a thick section of Pliocene deposits, the coarse zones of which contain fresh water, as indicated by electric logs of oil wells. Around the margins of the Central Basin Pressure Area, where many oil fields exist and more data are available, it is apparent that the fresh water was introduced into the Pliocene sediments by flushing the saline water toward the ocean. Much of the pressure area is in the South Gate-Santa Ana depression where only widely scattered exploratory type oil well data are available. No contours depicting the base of fresh water could be drawn through this area; however, the replacement of saline waters with fresh water appears to have occurred here as well.

The structural features which control or influence the occurrence and movement of ground water in the Central Basin Pressure Area are the South Gate-Santa Ana depression and the Newport-Inglewood uplift. The South Gate-Santa Ana depression extends from south of Beverly Hills into Orange County. It is bounded by transitional structures adjacent to the Puente and Repetto Hills on the northeast and the Newport-Inglewood uplift on the southwest. The Recent sediments in this depression are generally flat-lying as are the underlying deposits of the Lakewood formation. The San Pedro formation, however, is moderately folded and unconformably underlies the younger formations in most of the Central Basin.

The major structural features in the South Gate-Santa Ana depression are the Paramount syncline and Los Alamitos fault, and the Norwalk syncline. These structures appear to be developed only in the San Pedro formation, and they do not affect the overlying younger sediments. The Paramount syncline underlies the City of Paramount and extends northwesterly to the Inglewood fault north of the Baldwin Hills. The Los Alamitos fault appears as an extension of the axis of the Paramount syncline southeast of the City of Paramount. The Norwalk syncline extends from the City of Norwalk southeasterly to the Orange County line. It is separated from the Los Alamitos fault by an unnamed anticlinal fold which extends into Orange County. None of these structural features appear to materially affect ground water movement in the Central Basin Pressure Area.

The faults and anticlinal folds of the Newport-Inglewood uplift mark the west and southwest boundary of the Central Basin Pressure Area and are partial barriers to movement of ground water from the Central Basin to the West Coast Basin, as has been previously discussed.

Occurrence of Ground Water in the Central Basin

In all four areas of the Central Basin ground water is found in the Recent alluvium, the Lakewood and San Pedro formations, and sometimes in the older sediments. The aquifers in these formations have been discussed above under separate headings for each area of the Central Basin. The paragraphs that follow will take up the movement of ground water into and through the Central Basin as a whole, rather than by separate areas.

Ground water enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water. The main surface and subsurface flow into the basin is through the Los Angeles and Whittier Narrows from the ground water basins in the interior valleys. However, minor subsurface flow probably enters the area from the bordering relatively impermeable formations, and some subsurface flow can take place from the other surrounding ground water basins.

Replenishment of the aquifers by percolation of precipitation, stream flow, and applied water occurs in the forebay areas where permeable sediments are exposed at ground surface. In addition, some water also moves into the aquifers where they crop out on the surface against the surrounding highlands and in those portions of the pressure area where the Bellflower aquiclude is missing or contains considerable sand and gravel.

In the Los Angeles and Montebello Forebay Areas the aquifers are in hydraulic continuity in varying degrees, with each other and with the ground surface. In some instances this hydraulic continuity results from the aquifers being superposed one on another with no intervening clay members. Areas where each aquifer is merged with the overlying one are shown on the plates depicting lines of equal elevation on the base of each aquifer

(Plates 10A, 12A, 14, 16, 18A, 20A, and 22). In other portions of the forebay areas aquicludes present between the aquifers restrict direct movement of ground water between aquifers. However, these aquicludes are not continuous over the entire area; consequently, the hydraulic gradient controls the lateral movement of ground water to points where the aquifers are merged.

The areas of contact between aquifers and areas of contact with the ground surface are important because it is only through these areas that surface water can be introduced by spreading into the aquifers in major quantity. The most important area in this regard in the Coastal Plain of Los Angeles County is in the vicinity of the Whittier Narrows in the Montebello Forebay Area because of the interconnection of the deeper aquifers through the shallower ones to the ground surface. This condition also exists in the vicinity of the Los Angeles Narrows in the Los Angeles Forebay Area, but the paving of this area has essentially eliminated surface recharge to the aquifers below.

Plate 25, entitled "Areas Where Aquifers are Merged with Permeable Surface Deposits or Overlying Aquifers in Vicinity of Whittier Narrows" shows the generalized interconnections in and near the Whittier Narrows in the Montebello Forebay Area and the areas of essentially direct connection between the aquifers and the ground surface. This plate was derived from the detailed delineation of the areas of mergence shown on the plates depicting lines of equal elevation on the base of each aquifer.

Water applied on the surface can move directly into the Gaspur aquifer within the area shown on Plate 25. The Gage and Gardena aquifers immediately underlie the Gaspur aquifer and they are in hydraulic continuity. Below the Gage and Gardena aquifers are the Hollydale and Jefferson aquifers which are generally merged with the Gage and Gardena aquifers. This relationship is shown on Plates 12A, 14, 16, and Plate 25. These interconnections provide essentially complete continuity with the surface through the Gaspur aquifer. The areas of mergence of the deeper aquifers with the overlying ones are much more restricted and these limited areas are shown on Plate 25 as well as on Plates 18A, 20A, and 22. It will be noted from Plate 25 that the area of direct vertical recharge from the ground surface to the Lynwood aquifer is about one-third of the area of the Gaspur in contact with the ground surface. The area of direct vertical recharge to the Silverado and Sunnyside aquifers is even more restricted and is limited to a very small area in the immediate vicinity of Whittier Narrows Dam. These limited areas of interconnection severely restrict the amount of recharge that can directly reach the deeper aquifers from the ground surface. Fortunately, the areas of mergence through which water can reach the lower aquifers by devious paths is considerably larger than shown on Plate 25 (see Plates 12A, 14, 16, 18A, 20A, and 22). Therefore, even though the direct downward infiltration may be restricted or entirely impeded by an intervening aquiclude, water can move laterally in one aquifer to a point where the aquifer is merged with a lower one, permitting water applied at the surface to reach and replenish the deeper aquifers.

The areas of mergence between aquifers in the Los Angeles Forebay also are shown on the plates depicting lines of equal elevation on the base of each aquifer. It is evident that considerable opportunity existed for infiltration of water from the ground surface into the Gaspur aquifer and on into the deeper aquifers of the basin. However, as noted before, this area now is essentially covered with impervious material and the opportunity for surface recharge of the aquifers is practically nonexistent.

This is unfortunate from the standpoint of ground water basin utilization since the available storage capacity in the Los Angeles Forebay is large.

Under present conditions, ground water in the Montebello Forebay Area moves into the Los Angeles Forebay Area, the Whittier Area, and the Central Basin Pressure Area. Ground water from the Los Angeles Forebay Area also moves into the Central Basin Pressure Area. In the northern portion of the pressure area a ground water mound exists which separates ground water movement into two parts. North of this mound ground water moves northward into the Hollywood Basin while south of this mound ground water moves southwesterly toward the West Coast Basin.

Ground water movement in the Whittier Area in July 1958 was to the west and southwest in both the deep and shallow aquifers. The Santa Fe Springs-Coyote Hills uplift, the axis of which serves as the southern boundary of the Whittier Area, appears to restrict ground water movement to the south into the Central Basin Pressure Area in the aquifers of the Lakewood formation. The aquifers of the San Pedro formation are continuous across the uplift and it is reasonable to assume that ground water movement to the south could take place if the hydraulic gradient sloped in that direction.

Historically, subsurface flow took place from the Central Basin across the Newport-Inglewood uplift into the West Coast Basin. However, pumping has lowered the water level in the Central Basin and at present water levels in some aquifers are about equal on both sides of the Newport-Inglewood uplift. Further lowering of water levels on either side of the uplift could result in a hydraulic gradient being established which would slope toward the point of the lower water level with a consequent flow of water in that direction. A relatively small amount of subsurface flow occurs out of the Central Basin Pressure Area because most of the ground water moves to a series of pumping holes developed along the Newport-Inglewood uplift north of Dominguez Hill, along the Cherry Hill fault, north of Signal Hill and in the Lakewood area. From these areas the water is removed by pumping for industrial, irrigation, and domestic uses.

The movement of ground water across the Los Angeles-Orange County line, which forms the eastern boundary of the Central Basin, is entirely dependent on the hydraulic gradient in that area, as no physical barrier to ground water movement exists except for the Coyote Hills.

Transmissibility rates of aquifers in Central Basin as shown on Plates 26A through 26I are extremely variable, ranging up to 400,000 gallons per day per foot of width, although most of the aquifers have transmissibility rates of less than 100,000.

The Gaspur aquifer (Plate 26A) generally has a transmissibility rate of less than 200,000 gallons per day per foot, but has a maximum of 400,000 in a small area in Whittier Narrows. Transmissibility rates in the Artesia-Exposition aquifer average about 30,000 with a maximum transmissibility rate of about 70,000 in several small areas (see Plate 26B, "Lines of Equal Transmissibility of the Artesia-Exposition Aquifers"). The Gage and Gardena aquifers (Plate 26C) also have average rates of about 30,000 but reach a maximum value of about 100,000 near Long Beach and in the Whittier Narrows. The transmissibility rates of the Hollydale and Jefferson aquifers, shown on Plates 26D and 26E entitled, "Lines of Equal Transmissibility of the Hollydale Aquifer" and "Lines of Equal Transmissibility of the Jefferson Aquifer", respectively, have average values of about 20,000 gallons per day per foot of width. The Lynwood aquifer rates (Plate 26F) average about 40,000 but attain a maximum transmissibility rate of about 100,000 gallons per day per foot of width in several areas.

The Silverado aquifer (Plate 26G) averages about 60,000 but reaches a maximum of 400,000 near the intersection of Carson and Atlantic Boulevards. Data on the Sunnyside aquifer in the middle, deeper portion of Central Basin is not very complete, but it appears to have an average transmissibility rate of about 100,000 with a maximum of 300,000 in several areas as shown on Plate 26H, "Lines of Equal Transmissibility of the Sunnyside Aquifer".

The overall transmissibility of all aquifers in the Central Basin is of considerable importance. It may be noted on Plate 26I that high transmissibility rates exist from Whittier Narrows toward Long Beach and Compton, but that an area of low transmissibility separates the Montebello and Los Angeles Forebays. This low transmissibility partly explains the existence of the large pumping depression around Huntington Park and Vernon, where pumping rates are generally not much higher than in the Downey area but there no pumping depression exists.

While the Central Basin Pressure Area is, as its name signifies, essentially an area of confined aquifers, free ground water conditions exist in the Semiperched aquifer overlying the Bellflower aquiclude, and probably in the vicinity of Baldwin Hills where the San Pedro formation is exposed at the surface. In addition, changes in ground water storage have occurred immediately south of the two forebay areas in the upper aquifers directly underlying the Bellflower aquiclude.

In past ground water studies of the Central Basin, it was believed that the clay layer or cap covered all of the basin south of the forebay areas and effectively prevented any percolation of surface water into the aquifers below. Plate 9 shows places where this clay cap, the Bellflower aquiclude, contains considerable amounts of sand and gravel. In these areas, water applied on the surface could percolate down into the underlying aquifers and it is possible that free ground water conditions may exist from the surface down through one or more of the upper aquifers. These areas increase the total area of the Central Basin where changes in ground water storage can occur with changing water levels and where replenishment by deep percolation can occur. In addition, changes in storage in the Bellflower aquiclude itself is believed to occur as water levels are lowered. These changes in storage are relatively small however, because of the relatively low specific yield assigned to much of these sediments.

Total capacity to store ground water in the Central Basin above the base of the Sunnyside aquifer, or the Silverado aquifer where the Sunnyside is missing, is about 13,800,000 acre-feet. Historically utilized storage since 1904 amounts to about 780,000 acre-feet. As noted before, this change in storage has occurred primarily in the Montebello and Los Angeles Forebay Areas; however, some of the change in storage occurred in the pressure area immediately south of these areas where water levels were lowered below the base of the Bellflower aquiclude and near the Repetto and Whittier Hills where the San Pedro formation crops out at the surface. The storage capacity between high water levels, which occurred in 1904, and sea level amounts to about 1,340,000 acre-feet.

The storage and storage change for the Central Basin listed above may be broken down between the generalized areas delineated on Plate 2 as follows:

	Total storage to base of deepest aquifer	Storage between high water and sea level	Historically utilized storage
Los Angeles Forebay Area	1,800,000	430,000	190,000
Montebello Forebay Area	1,800,000	410,000	230,000
Whittier Area	600,000	60,000	20,000
Central Basin Pressure Area	9,600,000	440,000	340,000
Total	13,800,000	1,340,000	780,000

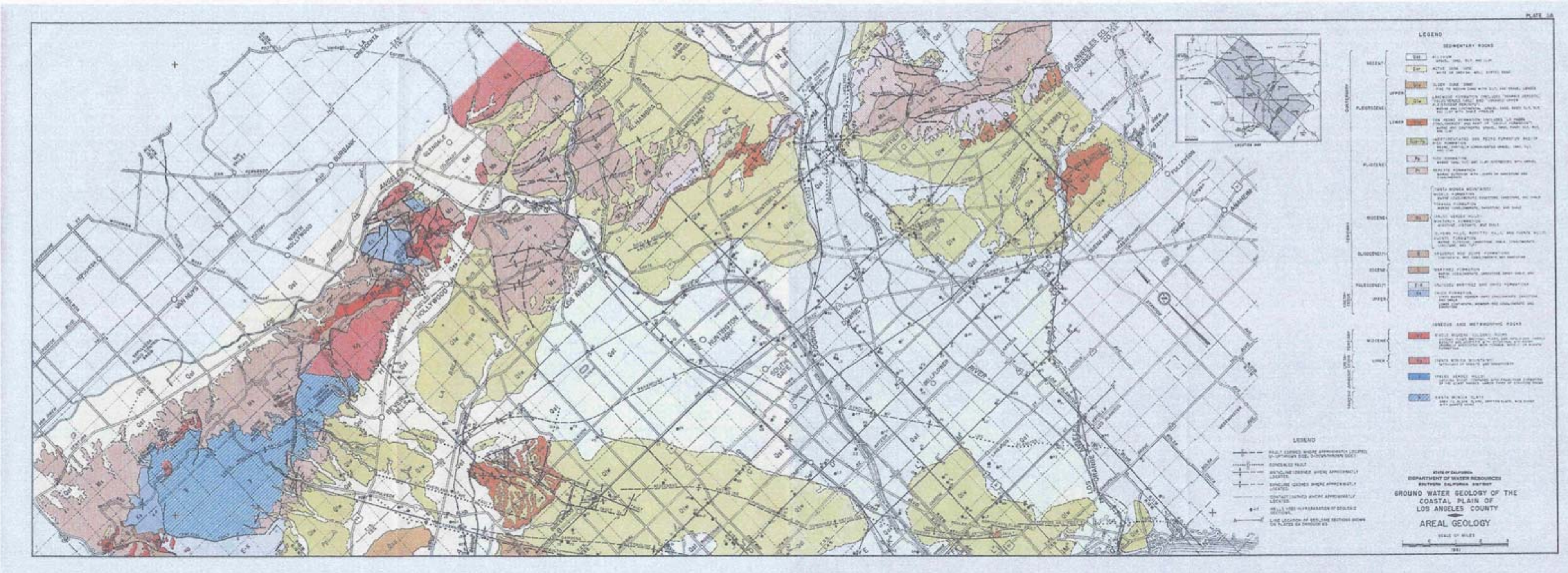


PLATE 3A
LEGEND
SEDIMENTARY ROCKS
IGNEOUS AND METAMORPHIC ROCKS
LEGEND
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN CALIFORNIA DISTRICT
GROUND WATER GEOLOGY OF THE
COASTAL PLAIN OF
LOS ANGELES COUNTY
AREAL GEOLOGY
SCALE OF MILES
1961
GLENDALE
BURBANK
NORTH HOLLYWOOD
VAN NUYS
HOLLYWOOD
LOS ANGELES
HUNTINGTON PARK
SOUTH GATE
FULLERTON
ANAHEIM

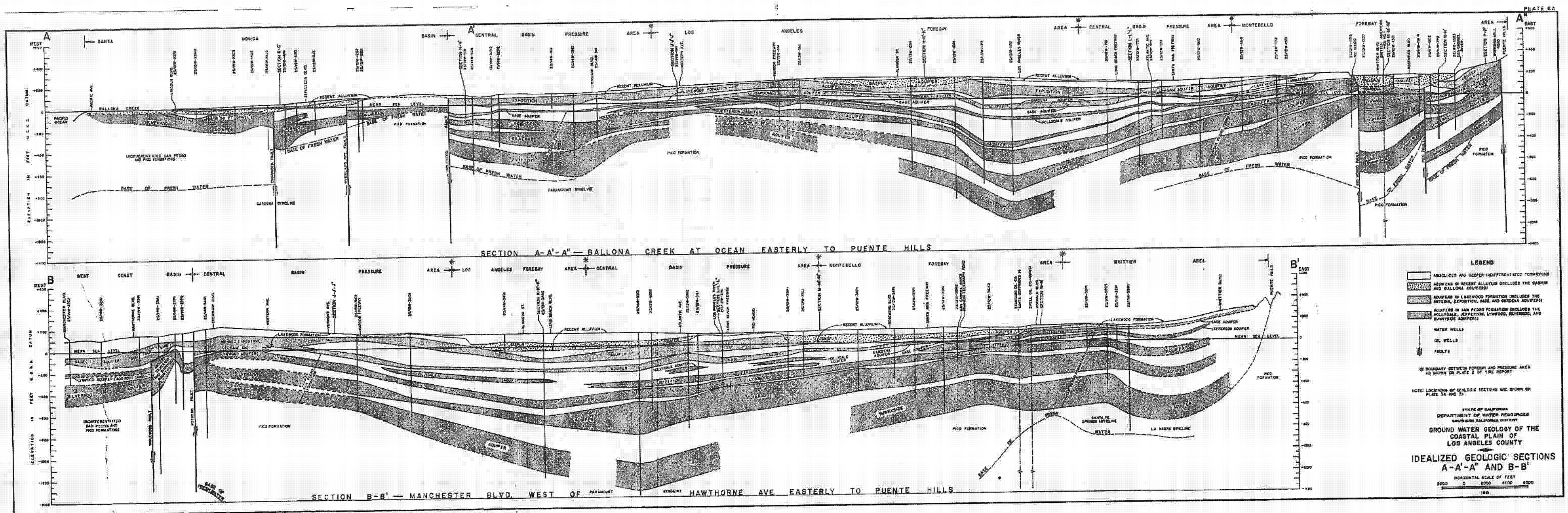


PLATE 6A
SECTION A-A'-A" — BALLONA CREEK AT OCEAN EASTERLY TO PUENTE HILLS
SECTION B-B' — MANCHESTER BLVD. WEST OF HAWTHORNE AVE. EASTERLY TO PUENTE HILLS
LEGEND
AQUICLUDES AND DEEPER UNDIFFERENTIATED FORMATIONS
AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
AQUIFERS IN SAN PEDRO FORMATION (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO, AND SUNNYSIDE AQUIFERS)
WATER WELLS
OIL WELLS
FAULTS
BOUNDARY BETWEEN FOREBAY AND PRESSURE AREA AS SHOWN ON PLATE 2 OF THE REPORT
NOTE: LOCATIONS OF GEOLOGIC SECTIONS ARE SHOWN ON PLATE 3A AND 3B
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN CALIFORNIA DISTRICT
GROUND WATER GEOLOGY OF THE COASTAL PLAIN OF LOS ANGELES COUNTY
IDEALIZED GEOLOGIC SECTIONS A-A'-A" AND B-B'
HORIZONTAL SCALE OF FEET
2000 0 2000 4000 6000
1961

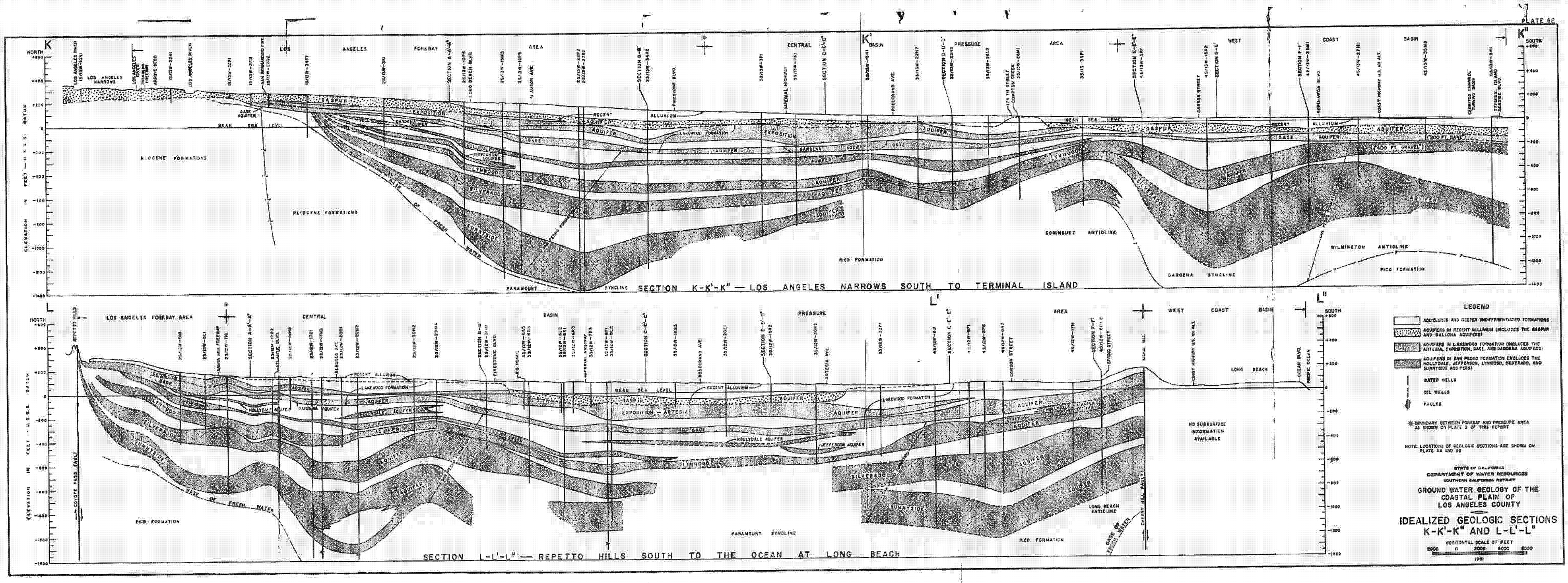


PLATE 6B
SECTION K-K'-K" — LOS ANGELES NARROWS SOUTH TO TERMINAL ISLAND
LOS ANGELES FOREBAY AREA
CENTRAL BASIN PRESSURE AREA
WEST COAST BASIN
MEAN SEA LEVEL
RECENT ALLUVIUM
GASPUR AQUIFER
EXPOSITION
GAGE
GARDENA AQUIFER
LYNWOOD
SILVERADO
AQUIFER
SUNNYSIDE
BASE OF FRESH WATER
MIOCENE FORMATIONS
PLIOCENE FORMATIONS
PICO FORMATION
DOMINGUEZ ANTICLINE
GARDENA SYNCLINE
WILMINGTON ANTICLINE
PARAMOUNT SYNCLINE
ELEVATION IN FEET — U.S.G.S. DATUM
SECTION L-L'-L" — REPETTO HILLS SOUTH TO THE OCEAN AT LONG BEACH
LOS ANGELES FOREBAY AREA
LAKEWOOD FORMATION
HOLLYDALE AQUIFER
JEFFERSON AQUIFER
EXPOSITION — ARTESIA
NO SUBSURFACE INFORMATION AVAILABLE
LONG BEACH ANTICLINE
COYOTE PASS FAULT
CHERRY HILL FAULT
LEGEND
AQUICLUDES AND DEEPER UNDIFFERENTIATED FORMATIONS
AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
AQUIFERS IN SAN PEDRO FORMATION (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO, AND SUNNYSIDE AQUIFERS)
WATER WELLS
OIL WELLS
FAULTS
* BOUNDARY BETWEEN FOREBAY AND PRESSURE AREA AS SHOWN ON PLATE 2 OF THIS REPORT
NOTE: LOCATIONS OF GEOLOGIC SECTIONS ARE SHOWN ON PLATE 3A AND 3B
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN CALIFORNIA DISTRICT
GROUND WATER GEOLOGY OF THE COASTAL PLAIN OF LOS ANGELES COUNTY
IDEALIZED GEOLOGIC SECTIONS K-K'-K" AND L-L'-L"
HORIZONTAL SCALE OF FEET
2000 0 2000 4000 6000
1961

Reference:
DWR, 2004

Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin

- Groundwater Basin Number: 4-11.04
- County: Los Angeles
- Surface Area: 177,000 acres (277 square miles)

Basin Boundaries and Hydrology

The Central Subbasin occupies a large portion of the southeastern part of the Coastal Plain of Los Angeles Groundwater Basin. This subbasin is commonly referred to as the "Central Basin" and is bounded on the north by a surface divide called the La Brea high, and on the northeast and east by emergent less permeable Tertiary rocks of the Elysian, Repetto, Merced and Puente Hills. The southeast boundary between Central Basin and Orange County Groundwater Basin roughly follows Coyote Creek, which is a regional drainage province boundary. The southwest boundary is formed by the Newport Inglewood fault system and the associated folded rocks of the Newport Inglewood uplift. The Los Angeles and San Gabriel Rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean. Average precipitation throughout the subbasin ranges from 11 to 13 inches with an average of around 12 inches.

Hydrogeologic Information

Water Bearing Formations

Throughout the Central Basin, groundwater occurs in Holocene and Pleistocene age sediments at relatively shallow depths. The Central Basin is historically divided into forebay and pressure areas. The Los Angeles forebay is located in the northern part of the Central Basin where the Los Angeles River enters the Central Basin through the Los Angeles Narrows from the San Fernando Groundwater Basin. The Montebello forebay extends southward from the Whittier Narrows where the San Gabriel River encounters the Central Basin and is the most important area of recharge in the subbasin. Both forebays have unconfined groundwater conditions and relatively interconnected aquifers that extend up to 1,600 feet deep to provide recharge to the aquifer system of this subbasin (DWR 1961). The Whittier area extends from the Puente Hills south and southwest to the axis of the Santa Fe Springs-Coyote Hills uplift and contains up to 1,000 feet of freshwater-bearing sediments. The Central Basin pressure area is the largest of the four divisions, and contains many aquifers of permeable sands and gravels separated by semi-permeable to impermeable sandy clay to clay, that extend to about 2,200 feet below the surface (DWR 1961). The estimated average specific yield of these sediments is around 18 percent. Throughout much of the subbasin, the aquifers are confined, but areas with semi-permeable aquicludes allow some interaction between the aquifers (DWR 1961).

The main productive freshwater-bearing sediments are contained within Holocene alluvium and the Pleistocene Lakewood and San Pedro Formations (DWR 1961). Throughout most of the subbasin, the near surface Bellflower aquiclude restricts vertical percolation into the Holocene age Gaspur aquifer and other underlying aquifers, and creates local semi-perched groundwater conditions. The main additional productive aquifers in the subbasin are the Gardena and Gage aquifers within the Lakewood Formation and the Silverado, Lynwood and Sunnyside aquifers within the San Pedro Formation (DWR 1961). Specific yield of deposits in this subbasin range up to 23 percent in the Montebello forebay, 29 percent in the Los Angeles forebay, and 37 percent in the Central Basin pressure area (DWR 1961). Historically, groundwater flow in the Central Basin has been from recharge areas in the northeast part of the subbasin, toward the Pacific Ocean on the southwest. However, pumping has lowered the water level in the Central Basin and water levels in some aquifers are about equal on both sides of the Newport-Inglewood uplift, decreasing subsurface outflow to the West Coast Subbasin (DWR 1961).

There are several principal aquifers/aquicludes present in this subbasin.

Aquifers/ Aquiclude	**Age**	**Formation**	**Lithology**	**Maximum Thickness (feet)**
Gaspur	Holocene		Coarse sand, gravel	120
Semiperched	Holocene		Sand, gravel	60
Bellflower	Pleistocene	Lakewood Formation	Clay, sandy clay	140
Gardena	Pleistocene	Lakewood Formation	Sand, gravel	160
Gage			Sand	120
Silverado	Lower Pleistocene	San Pedro Formation	Sandy gravel	300
Lynwood			Coarse sand and gravel	150
Sunnyside				350

Restrictive Structures

Many faults, folds and uplifted basement areas affect the water-bearing rocks in the Central Basin. Most of these structures form minor restrictions to groundwater flow in the subbasin. The strongest effect on groundwater occurs along the southwest boundary to the Central Subbasin. The faults and folds of the Newport – Inglewood uplift are partial barriers to movement of groundwater from the Central Basin to the West Coast Basin (DWR 1961). The La Brea high is a system of folded, uplifted and eroded Tertiary basement rocks. Because the San Pedro Formation is eroded from this area, subsurface flow southward from the Hollywood Basin is restricted to the Lakewood formation (DWR 1961). The Whittier Narrows is an eroded gap through the Merced and Puente Hills that provides both surface and subsurface inflow to the Central Basin (DWR 1961). The Rio Hondo, Pico, and Cemetery faults are northeast-trending faults that project into the gap and displace aquifers. The trend of these faults parallels the local groundwater flow and do not act as significant barriers to groundwater flow (DWR 1961).

Recharge Areas

Groundwater enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water; and replenishes the aquifers dominantly in the forebay areas where permeable sediments are exposed at ground surface (DWR 1961). Natural replenishment of the subbasin's groundwater supply is largely from surface inflow through Whittier Narrows (and some underflow) from the San Gabriel Valley. Percolation into the Los Angeles Forebay Area is restricted due to paving and development of the surface of the forebay. Imported water purchased from Metropolitan Water District and recycled water from Whittier and San Jose Treatment Plants are used for artificial recharge in the Montebello Forebay at the Rio Hondo and San Gabriel River spreading grounds (DWR 1999). Saltwater intrusion is a problem in areas where recent or active river systems have eroded through the Newport Inglewood uplift. A mound of water to form a barrier is formed by injection of water in wells along the Alamitos Gap (DWR 1999).

Groundwater Level Trends

Water levels varied over a range of about 25 feet between 1961 and 1977 and have varied through a range of about 5 to 10 feet since 1996. Most water wells show levels in 1999 that are in the upper portion of their recent historical range.

Groundwater Storage

Groundwater Storage Capacity. Total storage capacity of the Central Basin is 13,800,000 (DWR 1961).

Groundwater in Storage.

Groundwater Budget (Type A)

A complete water budget could not be constructed due to the lack of data available. Recharge to the subbasin is accomplished through both natural and artificial recharge. The Watermaster reported natural recharge for the subbasin to be 31,950 af and artificial recharge to be 63,688 af for 1998 (DWR 1999). Additionally, the subbasin receives 27,000 af/yr of water through the Whittier Narrows from the San Gabriel Valley Basin in the form of subsurface flow (SWRB 1952). Urban extractions for the subbasin were 204,335 af in 1998 (DWR 1999).

Groundwater Quality

Characterization. TDS content in the subbasin ranges from 200 to 2,500 mg/l according to data from 293 public supply wells. The average for these 293 wells is 453 mg/l.

I

Impairments.

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	316	15
Radiological	315	1
Nitrates	315	2
Pesticides	322	0
VOCs and SVOCs	344	43
Inorganics – Secondary	316	113

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Production characteristics

	Well yields (gal/min)
Municipal/Irrigation	
	Total depths (ft)
Domestic	
Municipal/Irrigation	

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
USGS	Groundwater levels	90
DWR	Groundwater levels	87
Los Angeles County Public Works	Groundwater levels	212 / Bi-monthly
USGS	Miscellaneous water quality	64
Department of Health Services and cooperators	Title 22 water quality	294

Basin Management

Groundwater management:	Central Basin was adjudicated in 1965, and the Department of Water Resources was appointed Watermaster. Every month extractions are reported to the Watermaster by each individual pumper. This allows the Watermaster to regulate the water rights of the subbasin. (DWR 1999)
Water agencies	
Public	City of Bellflower, Bellflower-Somerset MWC, City of Compton, City of Huntington Park, City of Long Beach, City of Los Angeles DWP, City of Montebello, City of Paramount, City of Pico Rivera, City of Santa Fe Springs, Sativa LA County WD, City of Signal Hill, South Montebello ID, City of South Gate, City of Vernon, City of Whittier. (DWR 1999)
Private	California-American Water Company, Montebello Land and Water Company, Bellflower Home Garden Water Co., California Water Service, Lynwood Park MWC, Maywood MWC, Park Water Company, Pearless Water Company, San Gabriel Valley Water Company, Southern California Water Company, Tract No. 180 Water Company, Tract 349 MWC, Western Water Company.(DWR 1999)

References Cited

California Department of Water Resources (DWR). 1961. Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County. Bulletin No. 104.

____, Southern District. 1999. Watermaster Service in the Central Basin, Los Angeles County, July 1, 1998 – June 30, 1999.

California State Water Resources Board (SWRB). 1952. Central Basin Investigation. Bulletin No. 8.

Additional References

United States Geological Survey (USGS). 2000. *Analysis of the Geohydrology and Water-management Issues of the Central and West Basins, Los Angeles County, California.* Internet Web Site: http://water.wr.usgs.gov/projects00/ca512.html.

Water Replenishment District of Southern California. 2000. *Annual Report on Results of Water Quality Monitoring Water Year 1998-1999.*

____. 2000. *Engineering Survey and Report.*

Errata

Changes made to the basin description will be noted here.

Reference:
EPA, 2012a

Confidential; to be included in the confidential information packet

Reference:
EPA, 2012b

REMEDIAL SITE ASSESSMENT DECISION - EPA REGION IX

EPA ID: CAN000908953 **Site Name:** ATLANTIC AVENUE SOUTHGATE PLUME **State ID:**

Alias Site Names:

City: SOUTH GATE

Refer to Report Dated: **County or Parish:** LOS ANGELES **State:** CA

Report Developed By: **Report Type:** SITE INSPECTION 001

☐ **1. Further Remedial Site Assessment Under CERCLA (Superfund) is not required because:**

☑ **2. Further Assessment Needed Under CERCLA:**

Discussion/Rationale:

This is a TCE plume with no known source. The area was evaluated as a plume in order to deduce likely sources and to determine if there was a vapor intrusion issue associated with the plume. Two potential sources were identified as a function of this SI and are being assessed as Preliminary Assessments. The vapor intrusion issue was resolved - based on the soil gas data, vapor instrusion in the area due to what is known of this plume is not an issue. The plume will not go on to and ESI and is being designated as Assessment Complete because ongoing work will be associated with the two potential sources identified adjacent to the highest levels of contamination along Atlantic Avenue, South Gate California.

Site Decision Made by:

Signature: ______________________ **Date:** 12/30/2012

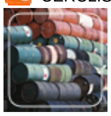
Reference:
EPA, 2013a

http://iaspub.epa.gov/enviro/cerclisquery.get_report?pgm_sys_id=CAN000909459

Envirofacts

Search Results

CERCLIS



<< Return

Site ID: Equal To: CAN000909459

CERCLIS Links

- Overview
- Search
- Model
- Law
- CERCLIS Search User Guide
- Contact Us
- Superfund Home

Report an Error

Results are based on data extracted on AUG-15-2013

Note: Click on the CORPORATE LINK value for links to that company's environmental web pages.
Click on the MAPPING INFO value to obtain mapping information for the facility.
Click on the RECORD OF DECISION value for a RODS Site Report.
Click on the "View Facility Information" link to view EPA Facility information for the facility.

Go To Bottom Of The Page

CERCLIS EPA ID:	CAN000909459	**SITE NAME:**	PRO SPEED SPORT TUNING
STREET ADDRESS:	9636 ATLANTIC AVENUE	**FACILITY INFORMATION**	View facility information
CITY NAME:	SOUTH GATE		
STATE ABBR:	CA	**FEDERAL FACILITY:**	N
ZIP CODE:		**NPL STATUS:**	Not on the NPL
COUNTY NAME:	LOS ANGELES		
CORPORATE LINK:	No	**RECORD OF DECISION (ROD) INFO:**	No
LATITUDE:	33.9444	**EPA REGIONAL LINK:**	No
LONGITUDE:	-118.18074	**MAPPING INFO:**	MAP
SITE SMSA:			

Enforcement and Cleanup Actions

Action	Action ID	Actual Start Date	Actual End Date	Responsibility	Planned Outcome	Urgency
DISCOVERY	001		06/22/2012	EPA Fund-Financed		

Site Description

There were no Site Descriptions reported for this site.

Below is additional information for CERCLIS sites:

This information resource is not maintained, managed, or owned by the Environmental Protection Agency (EPA) or the Envirofacts Support Team. Neither the EPA nor the Envirofacts Support Team is responsible for their content or site operation. The Envirofacts Warehouse provides this reference only as a convenience to our Internet users.

- National Library of Medicine (NLM) EXIT Disclaimer TOXMAP

Go To Top Of The Page

Total Number of Facilities Displayed: 1

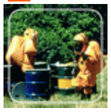
Last updated on Friday, August 23, 2013

Reference:
EPA, 2013b

Envirofacts

Search Results

RCRAInfo



Data Disclaimer

Only RCRAInfo facility information was searched to select facilities

<< Return

Location Address: 9636 Atlantic
City Name: South Gate
County Name: Los Angeles
State Abbreviation: CA

Results are based on data extracted on AUG-14-2013

No Results found.

Total Number of Facilities Displayed: 0

Last updated on Friday, August 23, 2013

RCRAInfo Links

- Overview
- Search
- Model
- Law
- RCRAInfo Search User Guide
- Contact Us
- Office of Resource Conservation and Recovery Home

Report an Error

Reference:
Google, 2013

Google earth

Pro-Speed Sport Tuning

Reference:
HA, 2013


HistoricAerials.com
Pro Speed Sport Tuning site
1954


HistoricAerials.com
Pro Speed Sport Tuning site
1972


HistoricAerials.com
Pro Speed Sport Tuning site
1980

Reference:
HHMD, 1999-2011

County of Los Angeles • Fire Department
Pre[illegible]tion Bureau
Health Hazardous Materials Division
5825 Rickenbacker Rd., Commerce 90040

LOG SHEET

Page 2 of ____

Site Name: Custom Creations Kitchen & Bath # FA0003789

Address: 9636 Atlantic Blvd. South Gate 90280

Date	HMS Init.	Findings /Remarks
9/7/2010	KS	File reviewed - and returned to Inspector Ogunnaya to follow-up at this facility to verify generator status & obtain the up product that was left by Inspector Rooney for evaluation K. Smith
09-09-10	CY	I conducted a routine inspection at the facility, licensed it and issued an NOV with compliance date set for 10-11-10.
10/9/2010	KS	File review - inspection report by Inspector Ogunnaya dated 9/9/2010. - File returned to Inspector to f/u on NOV and return company to compliance. K. Smith

HHMD•LS.G3•11/95

Workman INDUSTRIES
Sandpaper • Bolts • Hardware • Gloves
Wood Products • Screws • Tarps
Mario E. Moreira
Open Mon. Thru Sat.
9636 S. Atlantic Avenue
South Gate, CA 90280
Phone (323) 567-4758
Fax (323) 567-7458
Pager (213) 699-3387

HEALTH HAZARDOUS MATERIALS DIVISION
CASE LOG SHEET

9636 S Atlantic Blvd
SG 90280

		FINDINGS/REMARKS
1-13-99	EG	Conducted lien investigation. "WYSS BROS Metal" was out of business. New business is neither a handler nor a generator. Inactivated facility I.D. on OES 2730.
5-7-10	[illegible]	Permit investigation/inspection conducted on site w/ owner Jesus Nunez of Custom Creations. NOV issued to complete UP packet to determine status of HM or HW permits. ~~and~~ Previous Business Pro Speed was said to have vacated site by second week of April, 2010 & moved to 7936 Firestone Blvd in Downey → follow-up needed w/ Pro Speed to determine permit status. Business brought in HW to HHWRU on 4/24/2010 per Ken Smith's SHS finding. —Return—
5-28-10	JK	File review - Documentation & Write-up completed. —RETURN—

Inventory / CCP Tracking Report

Printed By : EY
Printed Date : 8/11/2011

Facility : FA0003789 **CUSTOM CREATIONS KITCHEN AND BATH**
9636 ATLANTIC AVE
Phone : 323-997-2087
SOUTH GATE **90280**

Owner : OW0057032 **CareOf:**
JESUS NUNEZ
9636 ATLANTIC AVE
SOUTH GATE CA 90280
DBA: CUSTOM CREATIONS KITCH
Work Phone : Not Specified
Home Phone : 323-997-2087

Cert Mail : **Dunn / Brad :**

SIC : 0000 - UNKNOWN

Program Element : 3001 HM HANDLER, FEE GROUP 01
01

Previous Record : *TBA*

District : SOUTHEAST **Station :** 054

Inventory
*** Current Status**

I

Inventory Tracking Milestones

Milestone		Date Completed
Report Year	2011	8/9/2011
Package Sent Date		
Package Received Date	3/31/2011	
Correction Notice Sent Date		
Correction Received Date		
Note	JESUS NUNEZ, OWNER, 3-1-11	

To Do Next

Forward to District Office

CCP
*** Current Status**

H

CCP Tracking Milestones

Milestone	
Report Year	2011
Package Received Date	3/31/2011
Correction Notice Sent Date	
Correction Received Date	

RECEIVED
AUG 19 2011
SOUTHEAST DISTRICT

Cal-ARP section --	RS : No

A. Package Sent B. Package Received D. Correction Notice Sent E. Correction Received
F. Identified with Chemical Change H. Accepted w/o Change I. Chemical Information Updated R. Undeliverble Mail

Last Touched Date : 8/9/11 By : EYEH
Report #5307_RS V. 110106

SE 01

LOS ANGELES COUNTY FIRE DEPARTMENT
HEALTH HAZARDOUS MATERIALS DIVISION
5825 Rickenbacker Road, Commerce, CA 90040

COMPLETED

BUSINESS PLAN ANNUAL RENEWAL CERTIFICATION

Hazardous Materials Inventory Statement (HMIS)

I certify that the attached HMIS reflects the handling of hazardous materials for the reporting year in accordance with the following conditions: (Please check all that apply).

- [ ] **Delete:** Write "delete" on the HMIS next to any previously disclosed hazardous materials that are no longer used.
- [ ] **Revise:** Write the correct amounts, locations, or container type on the HMIS to reflect the accuracy of any previously reported hazardous materials.
- [ ] **EPCRA Compliance:** Fill in the EPCRA field with your signature on the HMIS for any hazardous material type and quantity identified on 40 CFR Part 355, Appendix A—The List of Extremely Hazardous Substances and Their Threshold Planning Quantities.
- [x] **Add:** Complete one **Hazardous Materials Inventory—Chemical Description Form** to add each hazardous materials that you have not previously disclosed. Submit one form per chemical.
- [x] **No Change: Hazardous Materials Inventory Statement** (HMIS) is accurate and complete.

Consolidated Contingency Plan (CCP)

An initial submittal of the CCP is required when you start handling hazardous materials. At least once every 3 years after the initial submittal, the CCP needs to be reviewed and certified that the file with your agency is accurate and current in accordance with the following conditions:

- [x] **If the Owner/Operator page indicates "CCP Certification required"** complete and submit a new CCP.
- [x] **Modification:** Significant changes in facility personnel or operations required a revision of the CCP. Complete and submit changes of your CCP with this form. Indicate changes by crossing out old information, and writing in the correct information.
- [ ] **Lost:** Complete and submit any parts of your CCP that were lost or damaged.
- [ ] **No Change:** There have not been any significant changes in the facility's personnel and operations that require a revision to the current CCP.

Received
MAR 3 1 2011
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Cal-ARP Program

I reviewed the threshold quantities in Section 2770.5 of Title 19 of the California Code of Regulations and certify that any regulated substance on the attached HMIS accords with the following registration requirement:

- [ ] **Add:** Complete the **Cal-ARP Program Regulated Substance Registration** form only if the regulated substance is at or above the threshold quantity (TQ). Submit one form per chemical.
- [x] **No Change:** The previously submitted registration for regulated substance(s) is accurate.

ANNUAL CERTIFICATION

I certify that the information submitted herein is complete and accurate. Also, no hazardous materials subject to the inventory requirements of Chapter 6.95 of the Health and Safety Code are being handled that are not listed on the most recently submitted annual inventory form.

JESUS NUNEZ	JESUS NUNEZ	[signature]
Print Name of Document Preparer	Print Name of Owner/Operator	Signature of Owner/Operator
		3-1-11
Business Name	Site Address	Date

FA0003789 054
CUSTOM CREATIONS KITCHEN AND BATH

9636 ATLANTIC AVE

Submit this packet to the above address before January 3, 2011 to avoid a late submittal penalty of $331 or other enforcement options. Certified Mail advised. Do not submit any fees with this packet.
Obtain unified program forms from our website at http://www.fire.lacounty.gov/HealthHazMat/HHMDForms.asp or from our Data Operations Unit at (323) 890-4000.

Date run : 2/8/2011 3:22:19PM

FA0003789

os Angeles County Fir Dep tment

Owner/Operator Iden..ication

Beginning Date: 1/1/2011 Ending Date: 12/31/2011

Report #5314

V110208

COMPLETED

...clearly make changes/corrections.

2nd Request

OWNER FILE INFORMATION

Owner ID: OW0057032

Owner Name: JESUS ~~MUNEZ~~ NUNEZ Dvr Lic No: B9387628 CA State:

Owner DBA: CUSTOM CREATIONS KITCHEN AND BATH Tax ID : 26-4758939

Owner Address: 6137 ALAMO AVE Owner Date of Birth: 6-15-83

MAYWOOD, CA 90270

Work/Business Phone: Not Specified

Billing/Mailing Address: 9636 ATLANTIC AVE

SOUTH GATE, CA 90280

ATTN/Care of:

FACILITY FILE INFORMATION

On Site Regulated Substances : Yes ___ No ___

Facility ID: FA0003789

Facility Name: CUSTOM CREATIONS KITCHEN AND BATH

Site Location: 9636 ATLANTIC AVE

SOUTH GATE, CA 90280

Phone: 323-997-2087

Mailing Address: 9636 ATLANTIC AVE

SOUTH GATE, CA 90280

Operator/Care of: JESUS ~~MUNEZ~~ NUNEZ **E-Mail Address:** NUNEZ1506@YAHOO.COM

SIC Code: 0000

Operating Hours: Days: Hours:

Station: 054

Received

Date First Became Operational:

MAR 31 2011

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ENVIRONMENTAL CONTACT INFORMATION

Contact Name: Phone : Not Specified

Dun & Bradst.: * Please Fill-Out

EMERGENCY CONTACT INFORMATION

	PRIMARY CONTACT:	SECONDARY CONTACT:
Name :	JESUS NUNEZ	ROGELIO NUNEZ
Title :	OWNER	
Business Phone :	Not Specified	Not Specified
24 - Hour Phone :	~~Not Specified~~ (323) 997-2087	~~Not Specified~~ (323) 997-2088
Pager # :	Not Specified	Not Specified

ADDITIONAL INFORMATION

ASSESSORS PARCEL NUMBER: 6222-032-007

CCP Required ✓

No Site Map on File ✓

No Haz Mat Inventory Record Entered ✓

Certification: I certify under penalty of law that I have personally examined and am familiar with the information submitted in this inventory and believe the information is true, accurate and complete.

Print Name of Document Preparer : JESUS NUNEZ

Signature of Owner/Operator : [signature]

Date: 3-1-11

CCP Status:

UNIFIED PROGRAM (UP) FORM
BUSINESS OWNER/OPERATOR IDENTIFICATION

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COMPLETED

☒ NEW BUSINESS ☐ OUT OF BUSINESS ☐ REVISE/UPDATE (EFFECTIVE / /) PAGE OF

I. IDENTIFICATION

FACIDITY ID# 1	BEGINNING DATE 100: 6-1-10	ENDING DATE 101
BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As) 3: CUSTOM CREATIONS KITCHEN AND BATH		BUSINESS PHONE 102: 323 997-2087
BUSINESS SITE ADDRESS 103: 9636 ATLANTIC AVE.		
CITY 104: SOUTH GATE	CA	ZIP CODE 105: 90280
DUN & BRADSTREET 106: DUNCAN WAY & MC CALLUM		SIC CODE (4 digit #) 107
COUNTY LOS ANGELES 108		UNINCORPORATED ☐ Yes ☐ No 133a.
BUSINESS OPERATOR NAME 109: JESUS NUÑEZ		BUSINESS OPERATOR PHONE 110: 323 997-2087

II. BUSINESS OWNER

OWNER NAME 111: JESUS NUÑEZ		OWNER PHONE 112: 323 997-2087
OWNER MAILING ADDRESS 113: 6137 ALAMO AVE		
CITY 114: MAYWOOD	STATE 115: CA	ZIP CODE 116: 90270

III. ENVIRONMENTAL CONTACT

CONTACT NAME 117		CONTACT PHONE 118
CONTACT MAILING ADDRESS 119		
CITY 120	STATE 121	ZIP CODE 122

IV. EMERGENCY CONTACTS

-PRIMARY-	-SECONDARY-
NAME 123: JESUS NUÑEZ	NAME 128: ROGELIO NUÑEZ
TITLE 124: OWNER	TITLE 129
BUSINESS PHONE 125: 323 997-2087	BUSINESS PHONE 130: 323 780-7332
24-HOUR PHONE 126: 323 997-2087	24-HOUR PHONE 131: 323 997-2088
PAGER # 127	PAGER # 132

V. ADDITIONAL LOCALLY COLLECTED INFORMATION 133

NUMBER OF EMPLOYEES 133b: 3	FEDERAL TAX IDENTIFICATION NUMBER 133c

MAILING/ BILLING INFORMATION

ADDRESS 133d: 9636 ATLANTIC AVE	CITY 133e: SOUTH GATE	STATE 133f: CA	ZIP CODE 133g: 90280
ATTN: 133h: JESUS NUÑEZ			

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE	DATE 134: 10-1-10	NAME OF DOCUMENT PREPARER 135: JESUS NUÑEZ
NAME OF SIGNER (print) 136: JESUS NUÑEZ	TITLE OF SIGNER 137: OWNER	

OFFICIAL USE ONLY	INSPECTOR	HW	HM	DISTRICT	INSPECTION DATE	DIV	BATT	STA	

BUSINESS ACTIVITIES

I. FACILITY IDENTIFICATION

FACILITY ID # 1

EPA ID # (Hazardous Waste Only) 2
CAL000357143

BUSINESS NAME (Same as Facility Name or DBA-Doing Business As) 3
CUSTOM CREATION KITCHEN & BATH

II. ACTIVITIES DECLARATION

NOTE: If you check YES to any part of this list, please submit the Business Owner/Operator Identification page.

Does your facility…		If Yes, please complete these pages of the UPCF….
A. HAZARDOUS MATERIALS		
Have on site (for any purpose) hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in ASTs and USTs); or the applicable Federal threshold quantity for an extremely hazardous substance specified in 40 CFR Part 355, Appendix A or B; or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	☐ YES ☒ NO 4	4 HAZARDOUS MATERIALS INVENTORY – CHEMICAL DESCRIPTION 4 CONSOLIDATED CONTINGENCY PLAN (Section I and Site Map(s)) 4 TRAINING PLAN
B. UNDERGROUND STORAGE TANKS (USTs)		
1. Own or operate underground storage tanks?	☐ YES ☒ NO 5	4UST FACILITY 4UST TANK (one page per tank)
2. Intend to upgrade existing or install new USTs?	☐ YES ☒ NO 6	4UST FACILITY 4UST TANK (one per tank) 4UST INSTALLATION - CERTIFICATE OF COMPLIANCE (one page per tank)
3. Need to report closing a UST?	☐ YES ☒ NO 7	4UST TANK (closure portion –one page per tank)
C. ABOVE GROUND PETROLEUM STORAGE TANKS (ASTs)		
Own or operate ASTs above these thresholds: —any tank capacity is greater than 660 gallons, or —the total capacity for the facility is greater than 1,320 gallons?	☐ YES ☒ NO 8	NO FORM REQUIRED TO CUPAs
D. HAZARDOUS WASTE		
1. Generate hazardous waste?	☒ YES ☐ NO 9	4 EPA ID NUMBER – provide at the top of this page. 4 As a generator, answer YES to item E2b and complete Waste Generator Form.
2. Recycle more than 100 kg/month of excluded or exempted recyclable materials (per HSC 25143.2)?	☐ YES ☐ NO 10	4 RECYCLABLE MATERIALS REPORT
3. Treat hazardous waste on site?	☐ YES ☒ NO 11	4 ONSITE HAZARDOUS WASTE TREATMENT – FACILITY 4 ONSITE HAZARDOUS WASTE TREATMENT – UNIT (one page per unit)
4. Treatment subject to financial assurance requirements (for Permit by Rule and Conditional Authorization)?	☐ YES ☐ NO 12	4 CERTIFICATION OF FINANCIAL ASSURANCE
5. Consolidate hazardous waste generated at a remote site?	☐ YES ☐ NO 13	4 REMOTE WASTE / CONSOLIDATION SITE ANNUAL NOTIFICATION
6. Need to report the closure/removal of a tank that was classified as hazardous waste and cleaned onsite?	☐ YES ☐ NO 14	4 HAZARDOUS WASTE TANK CLOSURE CERTIFICATION
E. LOCAL REQUIREMENTS		15
1. REGULATED SUBSTANCES		
Have Regulated Substances (RS) including Extremely Hazardous Substances (EHS) stored on site at greater than the threshold planning quantities established by the California Accidental Release Program (Cal ARP)?	☐ YES ☒ NO 15a	In addition to Hazardous Materials requirements, complete: 4 Regulated Substance Registration 4 Risk Management Plan (when required)
2. OTHER REQUIREMENTS		
a. Have hazardous materials stored on site at or above a threshold amount established by a CUPA's or PA's local ordin[illegible]?	☐ YES ☐ NO 15b	4 Consult local CUPA or PA for added reporting requirements.
b. Required by a CUPA or PA to provide other information?	☐ YES ☐ NO 15c	4 Waste Generator Form (LA County)

OFFICIAL USE ONLY	UP Form	HW	HM	ARP	AST	UST	TP	CUPA	PA

Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN

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MAR 31 2011
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COVER PAGE

FACILITY IDENTIFICATION

BUSINESS NAME: CUSTOM CREATIONS KITCHEN AND BATH 3		FACILITY ID # 1
SITE ADDRESS: 9636 ATLANTIC AVE 103	CITY: SOUTH GATE 104	ZIP CODE: 90280 105

The Consolidated Contingency Plan provides businesses a format to comply with the emergency planning requirements of the following three written hazardous materials emergency response plans required in California:

- Hazardous Materials Business Plan (HSC Chapter 6.95 Section 25504 (b) and 19 CCR Sections 2729-2732),
- Hazardous Waste Generator Contingency Plan (22 CCR Section 66264.52), and,
- Underground Storage Tank Emergency Response Plan and Monitoring Program (23 CCR Sections 2632 and 2641). These forms are not included in this packet.

This format is designed to reduce duplication in the preparation and use of emergency response plans at the same facility, and to improve the coordination between facility response personnel and local, state and federal emergency responders during an emergency. Use the chart below to determine which sections of the Consolidated Contingency Plan need to be completed for your facility. If you are unsure as to which programs your facility is subject to, refer to the Business Activities Page.

PROGRAMS	SECTION(S) TO BE COMPLETED
Hazardous Materials Business Plan (HMBP)	Cover Page, Section I, and Site Map(s)
Hazardous Waste Generator (HWG)	Cover Page, Section I, and Site Map(s)
Underground Storage Tank (UST)	Cover Page, Sections I and II, and Site Map(s)
HMBP, HWG, UST	Cover Page, Sections I and II, and Site Map(s)

A copy of the plan shall be submitted to your local CUPA and at least one copy of the plan shall be maintained at the facility for use in the event of an emergency and for inspection by the local agency. Describe below where a copy of your Contingency Plan, including the hazardous material inventories and Site Map(s), is located at your business:

ON DOOR ENTERING THE SHOP

I certify under penalty of law that I have personally examined and I am familiar with the information provided by this plan and to the best of my knowledge the information is accurate, complete, and true.

Printed Name of Owner/ Operator: JESUS NUNEZ	Title of Owner/Operator: OWNER
Signature of Owner/ Operator:	Date: 10-1-10

We appreciate the effort of local businesses in completing these plans and will assist in every possible way. If you have any questions, please contact your local CUPA or PA.

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Unified Pr[illegible]gram [illegible]P) Form
CONSOLIDATED CONTINGENCY PLAN
SECTION I: BUSINESS PLAN AND CONTINGENCY PLAN

I. FACILITY IDENTIFICATION

BUSINESS NAME: CUSTOM CREATIONS KITCHEN AND BATH 3			FACILITY ID # 1
SITE ADDRESS: 9636 ATLANTIC AVE 103		CITY: SOUTH GATE 104	ZIP CODE 105: 90280

II. EMERGENCY CONTACTS

PRIMARY		SECONDARY	
NAME: JESUS NUÑEZ	123	NAME: ROGELIO NUNEZ	128
TITLE: OWNER	124	TITLE: ,	129
BUSINESS PHONE: 323 997-2087	125	BUSINESS PHONE: 323 780-7332	130
24-HOUR PHONE: 323 997-2087	126	24-HOUR PHONE: 323 997-2088	131
PAGER #	127	PAGER #	132

III. EMERGENCY RESPONSE PLANS AND PROCEDURES

A. Notifications

Your business is required by State Law to provide an immediate verbal report of any release or threatened release of a hazardous material to local fire emergency response personnel, this Unified Program Agency (CUPA or PA), and the Office of Emergency Services. If you have a release or threatened release of hazardous materials, immediately call:

FIRE/PARAMEDICS/POLICE/SHERIFF
PHONE: 911

AFTER the local emergency response personnel are notified, you shall then notify this Unified Program Agency and the Office of Emergency Services.

Local Unified Program Agency: (323) 890-4045
State Office of Emergency Service: (800) 852-7550 or (916) 262-1621
National Response Center: (800) 424-8802

Information to be provided during Notification:

- Your Name and the Telephone Number from where you are calling.
- Exact address of the release or threatened release.
- Date, time, cause, and type of incident (e.g. fire, air release, spill etc.)
- Material and quantity of the release, to the extent known.
- Current condition of the facility.
- Extent of injuries, if any.
- Possible hazards to public health and/ or the environment outside of the facility.

B. Emergency Medical Facility

List the local emergency medical facility that will be used by your business in the event of an accident or injury caused by a release or threatened release of hazardous material.

HOSPITAL/CLINIC: ST. FRANCIS MEDICAL CENTER	PHONE NO: 3-1-0 900-8900
ADDRESS: 3630 IMPERIAL HIGHWAY	
CITY: LYNWOOD	ZIP CODE: 90262

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Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN

SECTION I: BUSINESS PLAN AND CONTINGENCY PLAN

G. Emergency Procedures

Briefly describe your business standard operating procedures in the event of a release or threatened release of hazardous materials:

1. **PREVENTION** (prevent the hazard) – Describe the kinds of hazards associated with the hazardous materials present at your facility. What actions would your business take to prevent these hazards from occurring? You may include a discussion of safety and storage procedures.

THE KINDS OF HAZARDS ASSOCIATED WITH THE HAZARDOUS MATERIALS ARE SPILLS AND LEAKS. CONTAINERS OF HAZARDOUS MATERIALS ARE STORE AWAY FROM DRAINS, IN LEAK PROOF CONTAINERS WITH TIGHT FITTING LIDS IN A FIRE PROOF LOCKER AND HELD UNTIL LAWFULLY DISCARDED. EMPLOYEES ARE TRAIN ON BUSINESS PLAN MEASURES AND ARE TRAINED TO HANDLE MATERIALS.

2. **MITIGATION** (reduce the hazard) – Describe what is done to lessen the harm or the damage to person(s), property, or the environment, and prevent what has occurred from getting worse or spreading. What is your immediate response to a leak, spill, fire, explosion, or airborne release at your business?

SMALL SPILLS IS ALL THAT IS POSSIBLE, NO COUNTER IS LARGER THAN 5 GALLONS. THE RESPONSE TO SMALL SPILLS IS THE FOLLOWING: EVACUATE ANY UNNECESSARY EMPLOYEES FROM AREA OF SPILL. USING ABSORBENT MATERIALS, MAKE SURE THAT SPILLED MATERIAL IS CONTAINED AND PREVENTED FROM CONTAMINATING THE GROUND, SOIL, WATER OR DIS-CHARGE OFF PROPERTY.

3. **ABATEMENT** (remove the hazard) – Describe what you would do to stop and remove the hazard. How do you handle the complete process of stopping a release, cleaning up, and disposing of released materials at your facility?

THE RESPONSE TO A LIMITED SPILLS: EMPLOYEES INVOLVED IN THE CLEAN UP OF A SPILL WILL WEAR PROTECTIVE RUBBER GLOVES, SAFETY GLASSES AND ADDITIONAL PROTECTIVE CLOTHING. ABSORBED MATERIAL WILL BE PLACED IN A LEAK-PROOF CONTAINER THAT IS COMPATIBLE WITH THE WASTE. THE CONTAINER WILL HAVE A TIGHT-FITTING LID AND BE PROPERLY LABELED AS HAZARDOUS WASTE. THE WASTE WILL BE LAWFULLY DISPOSED AS HAZARDOUS WASTE.

Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN

SECTION I: BUSINESS PLAN AND CONTINGENCY PLAN

V. EMPLOYEE TRAINING

All facilities which handle hazardous materials must have a written employee training plan. The items listed below are required per Health and Safety Code Section 25504 (c) and Title 19 Section 2732.

Facility personnel are trained as follows:

- ❖ Familiarity with all plans and procedures specified in the Contingency Plan.
- ❖ Methods for Safe Handling of Hazardous Materials.
- ❖ Safety procedures in the event of a release or threatened release of a hazardous material.
- ❖ Use of Emergency Response equipment and supplies under the control of the business.
- ❖ Procedures for Coordination with local Emergency Response Organizations.

Training shall be provided:

- ❖ Initially for all new employees.
- ❖ Annually, including refresher courses, for all employees.

Note: These training programs may take into consideration the position of each employee.

Additional training should include:

- ❖ Internal alarm/notification procedures.
- ❖ Evacuation/re-entry procedures and assembly point locations.
- ❖ Material Safety Data Sheet (MSDS) training including specific hazard(s) of each chemical to which employees may be exposed, including routes of exposure *(i.e. inhalation, ingestion, absorption).*

VI. HAZARDOUS WASTE GENERATOR TRAINING

If your business is a hazardous waste generator, you are required to provide training in hazardous waste management for all workers who handle hazardous waste at your site (22 CCR §66265.16). You are also required to document training. The items below are required.

EMPLOYEE TRAINING
❖ Facility personnel will successfully complete training within six months after the date of their employment or assignment to a facility or to a new position at a facility. ❖ Employees will not handle hazardous wastes without supervision until trained.
TRAINING DOCUMENTATION
The owner or operator must maintain the following documents and records at the facility: ❖ Job title for each position at the facility that is related to hazardous waste management, and the names of the employee(s) filling the position(s). ❖ Description for each position listed above (must include required skill, education, or other qualifications as well as duties of employees assigned to the position. ❖ Description of *type* and *amount* of both introductory and continuing training given to each employee. ❖ Records that document that the requirements for training or job experience have been met. ❖ Current employees' training records (to be retained until closure of the facility). ❖ Former employees' training records (to be retained at least three years after termination of employment).

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CONSOLIDATED CONTINGENCY PLAN

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SITE MAP

A site plan and storage map must be included with your Contingency Plan. For relatively small facilities, these documents may be combined into one drawing. Since these drawings are intended for use in emergency response situations, larger facilities *(generally those with complex and/or multiple buildings)* should provide an overall site plan and a separate storage map for each building/storage area. A blank Facility Site Map has been provided on the reverse side of this page. You may complete that page or attach any other drawing(s) which contain(s) the information required below.

FA 3789

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1. **Site Plan:** This drawing shall contain, at a minimum, the following information:

   a. Site Orientation (north, south, etc.);
   b. Approximate scale *(e.g. "1 inch = 10 feet".)*;
   c. Date the map was drawn;
   d. Locations of all buildings and other structures;
   e. Parking lots and internal roads;
   f. Hazardous materials loading/unloading areas;
   g. Outside hazardous materials storage or use areas;
   h. Storm drain and sanitary sewer drain inlets;
   i. Wells for monitoring of underground tank systems;
   j. Primary and alternate evacuation routes, emergency exits, and primary and alternate staging areas;
   k. Adjacent property use;
   l. Locations and names of adjacent streets and alleys;
   m. Access and egress points and roads.

2. **Storage Map(s):** The map(s) shall contain, at a minimum, the following information:

   a. General purpose of each section/area within each building *(e.g. "Office Area", "Manufacturing Area", etc.)*;
   b. Location of each hazardous material/waste storage, dispensing, use, or handling area *(e.g. individual underground tanks, aboveground tanks, storage rooms, paint booths, etc.)*. Each area shall be identified by a unique location code number, letter, or name *(e.g. "1", "2", "3", "A", "B", "C", etc.)*;
   c. Entrances to and exits from each building and hazardous material/waste room/area;
   d. Location of each utility emergency shut-off point *(i.e. gas, water, electric.)*;
   e. Location of each monitoring system control panel *(e.g. underground tank monitoring, toxic gas monitoring, etc.)*.

3. **Map Legend**

Item and/or Description	Location Code (LC)
HAZARDOUS MATERIAL STORAGE	H - 1, 2, 3
ELECTRICAL SHUT OFF	C - 7
WATER SHUT OFF	C - 1
EXIT	B - 1
ENTRANCE	B - 12
HAZ WASTE	H - 3

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UNIFIED PROGRAM (UP) FORM
HAZARDOUS MATERIALS INVENTORY–CHEMICAL DESCRIPTION (FORM 2731)

(One page per material per building or area)

☐ ADD ☐ DELETE ☐ REVISE REPORTING YEAR 200 Page of

I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As)
CUSTOM CREATIONS KITCHEN AND BATH

CHEMICAL LOCATION 201
SOUTH WEST INTERIOR AREA of PROPERTY

CHEMICAL LOCATION CONFIDENTIAL (EPCRA) ☐ YES ☒ NO 20

FACILITY ID # 1 | MAP# (optional) 203 | GRID# (optional) 20

II. CHEMICAL INFORMATION

CHEMICAL NAME 205 | TRADE SECRET ☐ Yes ☒ No 206

If Subject to EPCRA, refer to instructions

COMMON NAME SPRAY BOOTH FILTERS 207 | EHS* ☐ Yes ☒ No 208

CAS# 209 | *If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA) 210

HAZARDOUS MATERIAL TYPE (Check one item only) ☐ a. PURE ☐ b. MIXTURE ☒ c. WASTE 211 | RADIOACTIVE ☐ Yes ☒ No 212 | CURIES 213

PHYSICAL STATE (Check one item only) ☒ a. SOLID ☐ b. LIQUID ☐ c. GAS 214 | LARGEST CONTAINER 5 GAL 215

FED HAZARD CATEGORIES (Check all that apply) ☒ a. FIRE ☐ b. REACTIVE ☐ c. PRESSURE RELEASE ☐ d. ACUTE HEALTH ☐ e. CHRONIC HEALTH 216

AVERAGE DAILY AMOUNT 217	MAXIMUM DAILY AMOUNT 218	ANNUAL WASTE AMOUNT 219	STATE WASTE CODE 220
N/A	12	10	

UNITS* (Check one item only) ☐ a. GALLONS ☒ b. CUBIC FEET ☐ c. POUNDS ☐ d. TONS 221 | DAYS ON SITE: 222

* If EHS, amount must be in pounds

STORAGE CONTAINER CODE–CHECK THE APPROPRIATE BOX BELOW

☐ a. ABOVEGROUND TANK ☐ b. UNDERGROUND TANK ☐ c. TANK INSIDE BUILDING ☐ d. STEEL DRUM
☐ e. PLASTIC/NONMETALLIC DRUM ☐ f. CAN ☐ g. CARBOY ☐ h. SILO
☐ i. FIBER DRUM ☐ j. BAG ☐ k. BOX ☐ l. CYLINDER
☐ m. GLASS BOTTLE ☐ n. PLASTIC BOTTLE ☐ o. TOTE BIN ☐ p. TANK WAGON
☐ q. RAIL CAR ☐ r. OTHER 223

STORAGE PRESSURE ☐ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT 224

STORAGE TEMPERATURE ☐ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT ☐ d. CRYOGENIC 225

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1 100 226	USED SPRAY BOOTH FILTER 227	☐ Yes ☒ No 228	N/A 229
2 230	231	☐ Yes ☐ No 232	233
3 234	235	☐ Yes ☐ No 236	237
4 238	239	☐ Yes ☐ No 240	241
5 242	243	☐ Yes ☐ No 244	245

COMPLETED

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

ADDITIONAL LOCALLY COLLECTED INFORMATION 246

If EPCRA, Please Sign Here
(Facilities reporting Chemicals subject to EPCRA reporting thresholds must sign each Chemical Description page for each EPCRA reported chemical.)

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UNIFIED PROGRAM (UP) FORM
HAZARDOUS MATERIALS INVENTORY–CHEMICAL DESCRIPTION (FORM 2731)

(One page per material per building or area)

☐ ADD ☐ DELETE ☐ REVISE REPORTING YEAR 200 Page of

I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As): CUSTOM CREATIONS KITCHEN AND BATH

CHEMICAL LOCATION: SOUTH WEST INTERIOR AREA OF PROPERTY 201

CHEMICAL LOCATION CONFIDENTIAL (EPCRA) ☐ YES ☒ NO 202

FACILITY ID # 1

MAP# (optional) 203 GRID# (optional) 204

II. CHEMICAL INFORMATION

CHEMICAL NAME 205

TRADE SECRET ☐ Yes ☒ No 206

If Subject to EPCRA, refer to instructions

COMMON NAME: STAINING RAGS 207

EHS* ☐ Yes ☒ No 208

CAS# 209

*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA) 210

HAZARDOUS MATERIAL TYPE (Check one item only): ☐ a. PURE ☐ b. MIXTURE ☒ c. WASTE 211

RADIOACTIVE ☐ Yes ☒ No 212 CURIES 213

PHYSICAL STATE (Check one item only): ☒ a. SOLID ☐ b. LIQUID ☐ c. GAS 214

LARGEST CONTAINER: 5 GAL 215

FED HAZARD CATEGORIES (Check all that apply): ☒ a. FIRE ☐ b. REACTIVE ☐ c. PRESSURE RELEASE ☐ d. ACUTE HEALTH ☐ e. CHRONIC HEALTH 216

AVERAGE DAILY AMOUNT: 15 217

MAXIMUM DAILY AMOUNT: 12 218

ANNUAL WASTE AMOUNT: 40 219

STATE WASTE CODE 220

UNITS* (Check one item only): ☐ a. GALLONS ☒ b. CUBIC FEET ☐ c. POUNDS ☐ d. TONS 221

* If EHS, amount must be in pounds

DAYS ON SITE: 365 222

STORAGE CONTAINER CODE-CHECK THE APPROPRIATE BOX BELOW

☐ a. ABOVEGROUND TANK ☐ b. UNDERGROUND TANK ☐ c. TANK INSIDE BUILDING ☐ d. STEEL DRUM ☐ e. PLASTIC/NONMETALLIC DRUM ☐ f. CAN ☐ g. CARBOY ☐ h. SILO ☐ i. FIBER DRUM ☐ j. BAG ☐ k. BOX ☐ l. CYLINDER ☐ m. GLASS BOTTLE ☐ n. PLASTIC BOTTLE ☐ o. TOTE BIN ☐ p. TANK WAGON ☐ q. RAIL CAR ☐ r. OTHER 223

STORAGE PRESSURE ☐ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT 224

STORAGE TEMPERATURE ☐ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT ☐ d. CRYOGENIC 225

	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	100 226	USED RAGS 227	☐ Yes ☒ No 228	N/A 229
2	230	231	☐ Yes ☐ No 232	233
3	234	235	☐ Yes ☐ No 236	237
4	238	239	☐ Yes ☐ No 240	241
5	242	243	☐ Yes ☐ No 244	245

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

ADDITIONAL LOCALLY COLLECTED INFORMATION 246

If EPCRA, Please Sign Here
(Facilities reporting Chemicals subject to EPCRA reporting thresholds must sign each Chemical Description page for each EPCRA reported chemical.)

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SOUTHEAST DISTRICT

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UNIFIED PROGRAM (UP) FORM
HAZARDOUS MATERIALS INVENTORY–CHEMICAL DESCRIPTION (FORM 2731)

(One page per material per building or area)

☐ADD ☐DELETE ☐REVISE REPORTING YEAR Page of

COMPLETED

I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As) 200
CUSTOM CREATIONS KITCHEN AND BATH

CHEMICAL LOCATION 201
SOUTH WEST INTERIOR AREA OF PROPERTY

CHEMICAL LOCATION CONFIDENTIAL (EPCRA) ☐ YES ☒ NO 202

FACILITY ID # 1

MAP# (optional) 203

GRID# (optional) 204

II. CHEMICAL INFORMATION

CHEMICAL NAME 205

TRADE SECRET ☐ Yes ☒ No 206
If Subject to EPCRA, refer to instructions

COMMON NAME LAQUER THINNER 207

EHS* ☐ Yes ☒ No 208

CAS# 209

*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA) 210

HAZARDOUS MATERIAL TYPE (Check one item only) ☐ a. PURE ☐ b. MIXTURE ☒ c. WASTE 211

RADIOACTIVE ☐ Yes ☒ No 212

CURIES 213

PHYSICAL STATE (Check one item only) ☐ a. SOLID ☒ b. LIQUID ☐ c. GAS 214

LARGEST CONTAINER 5 GAL 215

FED HAZARD CATEGORIES (Check all that apply) ☒ a. FIRE ☐ b. REACTIVE ☐ c. PRESSURE RELEASE ☐ d. ACUTE HEALTH ☐ e. CHRONIC HEALTH 216

AVERAGE DAILY AMOUNT 1/10TH 217

MAXIMUM DAILY AMOUNT 1/2 218

ANNUAL WASTE AMOUNT 30 219

STATE WASTE CODE 220

UNITS* (Check one item only) ☒ a. GALLONS ☐ b. CUBIC FEET ☐ c. POUNDS ☐ d. TONS 221
* If EHS, amount must be in pounds.

DAYS ON SITE: 365 222

STORAGE CONTAINER CODE-CHECK THE APPROPRIATE BOX BELOW

☐ a. ABOVEGROUND TANK	☐ e. PLASTIC/NONMETALLIC DRUM	☐ i. FIBER DRUM	☐ m. GLASS BOTTLE	☐ q. RAIL CAR
☐ b. UNDERGROUND TANK	☐ f. CAN	☐ j. BAG	☐ n. PLASTIC BOTTLE	☐ r. OTHER
☐ c. TANK INSIDE BUILDING	☐ g. CARBOY	☐ k. BOX	☐ o. TOTE BIN	
☒ d. STEEL DRUM	☐ h. SILO	☐ l. CYLINDER	☐ p. TANK WAGON	

223

STORAGE PRESSURE ☐ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT 224

STORAGE TEMPERATURE ☐ a. AMBIENT ☐ b. ABOVE AMBIENT ☐ c. BELOW AMBIENT ☐ d. CRYOGENIC 225

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1 100% 226	USED LAQUER THINNER 227	☐ Yes ☒ No 228	N/A 229
2 230	231	☐ Yes ☐ No 232	233
3 234	235	☐ Yes ☐ No 236	237
4 238	239	☐ Yes ☐ No 240	241
5 242	243	☐ Yes ☐ No 244	245

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

ADDITIONAL LOCALLY COLLECTED INFORMATION 246

If EPCRA, Please Sign Here
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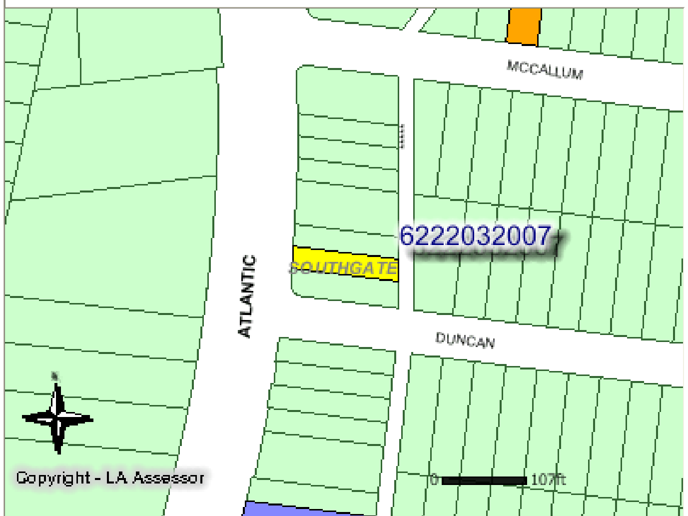
Reference:
LACA, 2013

Los Angeles County
Office of the Assessor



Records for this property are kept at the South District Office
("How frequently is the information updated on this site?" and other FAQs)

Property Information

Assessor's ID No.	6222-032-007
Site Address	9636 ATLANTIC AVE SOUTH GATE CA 90280
Property Type	Commercial / Industrial
Region / Cluster	26 / 26820
Tax Rate Area (TRA)	15186

Click Here to View Assessor's Map

[Click Here to View Index Map]

Recent Sale Information

Latest Sale Date	
Indicated Sale Price	

Search for Recent Sales

2013 Roll Values

Recording Date	04/12/2006
Land	$39,756
Improvements	$210,548
Personal Property	$0
Fixtures	$0
Homeowners' Exemption	$0
Real Estate Exemption	$0
Personal Property Exemption	$0
Fixture Exemption	$0

Tax bill payment information for 2013-14
as well as any changes to the 2013 Roll Values
will be available after September 30, 2013.

Estimate Supplemental Taxes

Property Boundary Description

TRACT NO 5496 LOT 62

Building Description(s)

	Improvement 1
Square Footage	2,295
Year Built / Effective Year Built	1985 / 1985
Bedrooms / Bathrooms	0 / 0
Units	0

Click Here for Another Search

Reference:
RWQCB, 2013

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER

PROJECT SEARCH RESULTS

SEARCH CRITERIA: 9636 ATLANTIC, SOUTH GATE, LUFT, SLIC, LANDFILL, DOD, DODPRIV, DODUST, WDR

0 RECORDS FOUND EXPORT TO EXCEL PAGE 1 OF 1

NO PROJECTS FOUND WITH THOSE SEARCH PARAMETERS.

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- # Understanding Solvents: Part III (Laquer Thinner)

Posted on March 4th, 2010 By Bob Flexner No comments

Lacquer thinner is the solvent and thinner used with all types of lacquer, including nitrocellulose, CAB-acrylic and catalyze the most interesting of the finish solvents because it’s composed of half-a-dozen or so individual solvents. Manufacturers va these to control solvent strength and evaporation rate.

Solvents from all five of the solvent families are used in lacquer thinners. (See Understanding Solvents, Part II). Toluene, xy and “high-flash” (meaning fast evaporating) naphtha are from the petroleum-distillate family. The other four families are ke esters, glycol ethers and alcohols.

All the individual solvents from the ketone, ester and glycol ether families dissolve lacquer on their own and are called “acti solvents. But they evaporate at different rates, so manufacturers choose among them to make a thinner that evaporates in ste the speeds they want.

Alcohol doesn’t dissolve lacquer on its own, but it does in combination with these other solvents, so it is called a “latent” so One or more of the alcohols is usually added to the mix to reduce cost.

The nature of lacquers is that they can be fully dissolved (meaning the lacquer molecules are separated) and still be too thicl spray without getting severe orange peel. So to further “thin” the lacquer (and also lacquer thinner) without adding expensiv dissolving solvents, manufacturers add up to 50% toluene, xylene or high-flash naphtha.

These solvents are called “diluents” or “diluting” solvents.

Because the diluting solvents don’t dissolve lacquer, they have to evaporate fast enough to be out of the lacquer before all tl dissolving solvents have evaporated. Otherwise, the lacquer will come out of solution and appear as white, cotton-like, parti the dried finish.

1 - Solvent Strength

Solvent Strength

By varying the individual solvents and the ratios used, manufacturers control the strength of the lacquer thinner and the spee lacquer dries.

Strength is important to insure the lacquer fully dissolves. All commonly available lacquer thinners sold for thinning lacque adequately dissolve the lacquer. But less expensive lacquer thinners sold for clean up don't dissolve lacquer adequately. If t much of this thinner is added, the lacquer will come out of solution.

Automotive lacquers require a higher ratio of dissolving solvents than do wood lacquers. So thinners sold for automotive lac are more expensive, but they still work well with wood lacquers. On the other hand, lacquer thinners sold for wood lacquers not be strong enough to thin automotive lacquers.

Multiple Solvents

Arguably, the most unique characteristic of lacquer finishes, and the reason so many finishers love spraying lacquer, is its resistance to running and sagging of vertical surfaces. The finish can be sprayed quite thick without problems. It's hard to sc up a sprayed lacquer finish.

The explanation is the lacquer thinner. It is composed of a number of individual solvents that evaporate at different rates.

Lacquer is a thick finish that requires a lot of solvent (as much as 75% or more) to make it thin enough to get through the nc on the spray gun without orange peel. But once the finish gets through nozzle, it no longer needs to be so thin. It no longer r so much thinner.

So individual solvents are chosen to evaporate very quickly after the lacquer finish is sprayed. These solvents, beginning wi those that don't dissolve the lacquer, evaporate one after another, beginning as soon as the finish leaves the spray gun, so th lacquer thickens quickly on the surface. Some slower evaporating solvents, called "tail" solvents, remain for a while to allov lacquer to level out.

To better understand what's happening, please refer to the Table of Solvents, which I include here only for illustration, not v the idea that you should have to learn these names. These are the most common individual dissolving solvents added to lacq and used to make up lacquer thinners.

The solvent, butyl acetate, almost halfway down in bold, is used as the standard to which the other solvents are compared. It assigned the value of "1."

So acetone, at the top of the list with a value of 5.7, evaporates 5.7 times faster than butyl acetate, and Butyl Cellosolve, at t bottom of the list with a value of .08, evaporates about 1/12 as fast as butyl acetate. Acetone evaporates very rapidly; Butyl Cellosolve evaporates very slowly; and all the other solvents listed evaporate somewhere in between.

Include three or four of these solvents together with some very fast evaporating toluene or high-flash naphtha and it's easy t understand how the sequential evaporation of each solvent causes lacquer finishes to seize up quickly on vertical surfaces sc don't run or sag.

2 - Fast & Slow

Fast and Slow

It's also easy to understand how lacquer thinners can be made to evaporate faster or slower simply by choosing solvents nea top of the list or nearer the bottom of the list.

Lacquer retarders, used to eliminate blushing (turning white) on humid days and eliminate dry spray (a sandy surface) on hc days or when spraying the insides of cabinets, are made up of individual solvents nearer the bottom of the list.

The slowest evaporating retarder and the most effective in extremely humid conditions, such as those found near the Gulf of Mexico, is Butyl Cellosolve, which is commonly sold separately as a “super” retarder.

Be aware that adding any retarder to lacquer slows the drying and may affect your production (more time between coats and time before you can deliver or stack parts).

Fast lacquer thinners, usually available from auto-body supply stores but not from wood-finish suppliers, are made up of sol nearer the top of the list. These thinners make it possible to spray with near normal drying times in cold temperatures.

Acetone can also be used to speed the drying of lacquer in cold temperatures. You add it to the finish similar to the way you retarder, judging how much will be necessary to achieve the drying rate you want. It’s always trial and error with both retard with acetone or fast lacquer thinner.

3 - Brushing Laquer

Standard lacquer thinners from different manufacturers all dissolve and thin lacquer adequately, but they may differ somewh their evaporation rate. If you switch brands of lacquer thinner, you may have to adjust your finishing schedule.

Brushing Lacquer

Some lacquers are made for brushing. To achieve this, manufacturers simply use slower evaporating solvents to dissolve the lacquer. Spraying one of these brushing lacquers requires more attention because they have a much greater tendency to run on vertical surfaces, and they slow production because they dry slower.

Restricted Areas

Some parts of the country have VOC laws that restrict the percentage of solvent that can be included in a finish. Typically, t laws restrict lacquer to 27.5 percent VOC solvent, which is way too little for spraying.

4 - Restricted Areas

Acetone, however, is an exempt solvent. It can be added to lacquer in any amount, so manufacturers typically make up the difference between 27.5% and about 75% with acetone.

This has two impacts. First, it makes the lacquer more expensive. Second, and much more significant, it makes the lacquer d fast it can’t be sprayed in warm temperatures without getting dry spray. (The lacquer works great in cold temperatures, how

Finishers get around the fast drying by adding Butyl Cellosolve to the lacquer. It’s legal to sell and buy this solvent, but you should be aware that adding it to your lacquer may take it out of compliance.

Table 1 – Solvent Evaporation Rates

Dissolving Solvent	**Relative Evaporation Rate**
Acetone	5.7
Ethyl Acetate	4.1
Methyl Ethyl Ketone (MEK)	3.8
Isopropyl Acetate	3.0
Methyl n-Propyl Ketone	2.3
Propyl Acetate	2.3
Methyl Isobutyl Ketone (MIBK)	1.6
Isobutyl Acetate	1.4
Butyl Acetate	**1.0**
Propylene Glycol Methyl Ether (Eastman PM)	.7
Methyl Isoamyl Ketone (MIAK)	.5
Methyl Amyl Acetate	.5
Propylene Glycol Methyl Ether Acetate (Eastman PM Acetate)	.4
Amyl Acetate	.4
Methyl Amyl Ketone (MAK)	.4
Isobutyl Isobutyrate (IBIB)	.4
Cyclohexanone	.3
Diisobutyl Ketone	.2
Ethylene Glycol Propyl Ether (Eastman EP)	.2
Diacetone Alcohol	.12
Ethyl 3-ethoxypropionate (EEP)	.12
Propylene Glycol Butyl Ether	.08
Ethylene Glycol Butyl Ether (Butyl Cellosolve, Eastman EB)	.08

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Reference:
WESTON, 2012

Site Inspection Report
Atlantic Avenue South Gate Plume
South Gate, Los Angeles County, California

EPA ID No.: CAN000908953
USACE Contract No.: W91238-11-D-0001
Interagency Agreement No.: 95777001-0
Document Control No.: 20074.063.029.1009

August 2012

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U.S. Environmental Protection Agency
Region 9

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Oakland, California 94612

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LIST OF ACRONYMS

Atlantic Avenue Plume	Atlantic Avenue South Gate Plume
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CLP	Contract Laboratory Program
CLPAS	Contract Laboratory Program Analytical Services
Cooper Drum	Cooper Drum Company
CoC	Contaminant of Concern
CoL	City of Lynwood
CoSG	City of South Gate
CPT	Cone Penetration Test
DCA	dichloroethane
DCE	dichloroethylene
DTSC	Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
GSWC	Golden State Water Company
HRS	Hazard Ranking System
LAUSD	Los Angeles Unified School District
MCL	Maximum Contaminant Level
MRL	Method Reporting Limit
MTBE	methyl tert-butyl ether
MWD	Mutual Water District
NPL	National Priorities List
OU	Operable Unit
PA	Preliminary Assessment
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
PDB	Passive Diffusion Bag
PRP	Potentially Responsible Party
RCRAInfo	Resource Conservation and Recovery Act Information
RI	Remedial Investigation
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SCWC	Southern California Water Company
SI	Site Inspection
SRHS	South Region High School #9

SVE	Soil Vapor Extraction
TCA	trichloroethane
TCE	trichloroethylene
TCP	trichloropropane
UAO	Unilateral Administrative Order
VC	vinyl chloride
VOC	volatile organic compound
WESTON	Weston Solutions, Inc.
µg/L	microgram per liter

1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), Weston Solutions, Inc. (WESTON®) has been tasked to conduct a Site Inspection (SI) of the Atlantic Avenue South Gate Plume (Atlantic Avenue Plume) site, located in South Gate, Los Angeles County, California.

The Atlantic Avenue Plume site was identified as a potential hazardous waste site and entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on September 1, 2010 (EPA ID No.: CAN000908953). A Preliminary Assessment (PA) was completed for the United States Environmental Protection Agency (EPA) by WESTON in October 2011. The purpose of the PA was to review existing information on the site and its environs, to assess the threat(s), if any, posed to public health, welfare, or the environment, and to determine if further investigation under CERCLA/SARA was warranted (EPA, 2012e; WESTON, 2011).

After reviewing the PA, the EPA decided that further investigation would be necessary to more completely evaluate the site using the EPA Hazard Ranking System (HRS) criteria. The HRS assesses the relative threat associated with actual or potential releases of hazardous substances at the site. The HRS has been adopted by the EPA to help set priorities for further evaluation and eventual remedial action at hazardous waste sites. The HRS is the primary method of determining a site's eligibility for placement on the National Priorities List (NPL). The NPL identifies sites where the EPA may conduct remedial response actions. This report summarizes the results of the SI for the Atlantic Avenue Plume site (EPA, 2011b).

More information regarding the Superfund Program is available on the EPA website at http://www.epa.gov/superfund. The EPA's site assessment process is described in Appendix H.

1.1 Apparent Problem

The apparent problems at the Atlantic Avenue Plume site, which contributed to EPA's determination that a SI was necessary, are as follows:

- In 2008 and 2009, during EPA sampling associated with the Cooper Drum Company (Cooper Drum) Superfund site (EPA ID No.: CAD055753370), previously unidentified volatile organic compound (VOC) groundwater contamination was discovered in the shallow Gaspur Aquifer (ITSI, 2010).

- The previously unidentified contamination exhibited concentrations of trichloroethylene (TCE) up to 3,900 micrograms per liter (µg/L) and cis-1,2-dichloroethylene (DCE) up to 290 µg/L. Up-gradient and cross-gradient samples exhibited maximum TCE and cis-1,2-DCE concentrations of 8.2 µg/L and 6.5 µg/L, respectively. The Maximum Contaminant

Levels (MCLs) for TCE and cis-1,2-DCE are 5 µg/L and 70 µg/L, respectively (ITSI, 2010).

- In 2007, a groundwater sample collected by the Los Angeles Unified School District (LAUSD) at the northwestern portion of the proposed South Region High School #9 (SRHS) property, exhibited a TCE concentration of 850 µg/L. The Atlantic Avenue Plume PA Report concluded that there was a potential for the TCE contamination identified on the LAUSD site to be associated with the previously unidentified VOC contamination discovered by EPA in 2008/2009 (ITSI, 2010; Parsons, 2008; WESTON, 2011).

2.0 SITE DESCRIPTION

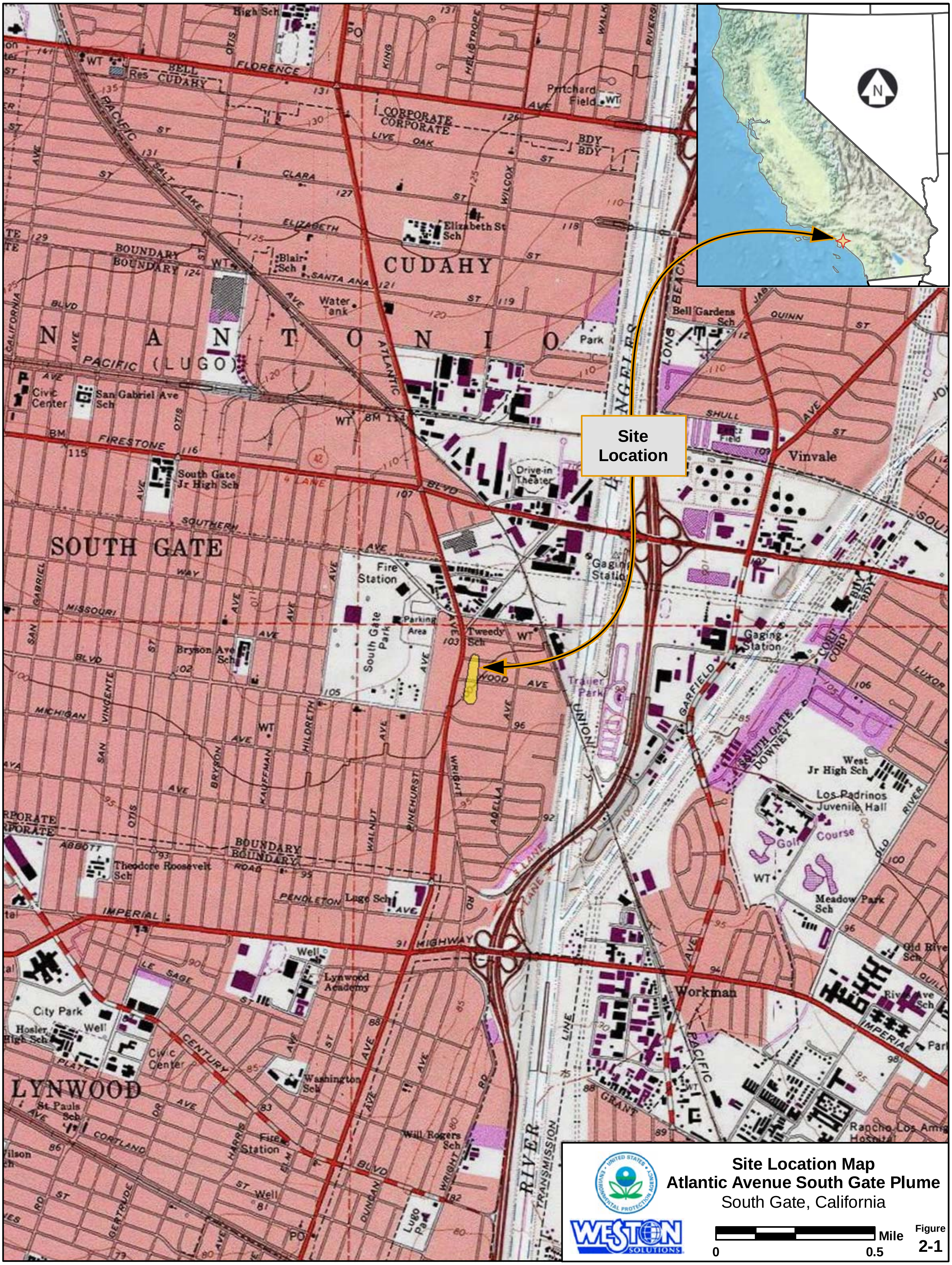
2.1 Location

The Atlantic Avenue Plume site is located in South Gate, Los Angeles County, California. For the purposes of this SI, the site boundaries as defined in the 2011 PA Report were maintained. The northern site boundary is located approximately 50 feet north of Duncan Way and the southern site boundary is located approximately 300 feet north of Tweedy Boulevard. The western and eastern site boundaries are located approximately 150 feet and 350 feet east of Atlantic Avenue, respectively. The geographic coordinates for the geometric center of the site are 33˚ 56’ 35.2" North latitude and 118˚ 10’ 48.6" West longitude. The site location is shown in Figure 2-1 (Google, 2012; WESTON, 2011; Appendix D).

2.2 Site Description

The Atlantic Avenue Plume site is located in a mixed commercial, industrial, and residential area of South Gate, California. The site, as set forth in the 2011 PA Report, encompasses approximately 3.4 acres and is primarily occupied by single-family residential buildings with commercial and light industrial buildings located along the western and southern portions of the site. The commercial/industrial buildings within the site boundaries are located on the eastern side of the 9700 and 9800 blocks of Atlantic Avenue. The southeastern corner of the site is occupied by a property currently being developed into a school by the LAUSD. The site layout is shown in Figure 2-2 (Google, 2012; WESTON, 2011).

The Atlantic Avenue Plume site is situated within an area of the city of South Gate that includes, and has historically included, numerous large industrial properties that have had significant regulatory involvement. The most pertinent of these properties and their relative locations with respect to the Atlantic Avenue Plume site are: The Cooper Drum Company site (EPA ID No.: CAD055753370), which is located approximately 1,000 feet to the north; the Jervis B Webb Company site (EPA ID No.: CAD008339467), which is located approximately 2,000 feet to the north-northeast; the Southern Avenue Industrial Area (EPA ID No.: CAN000905902), which is located approximately 900 feet to the northeast; and the LAUSD SRHS #9 site, which is located generally to the southeast and is partially overlapped by the Atlantic Avenue Plume site. The relative locations of these sites are shown in Figure 2-3. Additional information regarding federal regulatory involvement at these properties is provided in Section 2.4 (Google, 2012; WESTON, 2011).

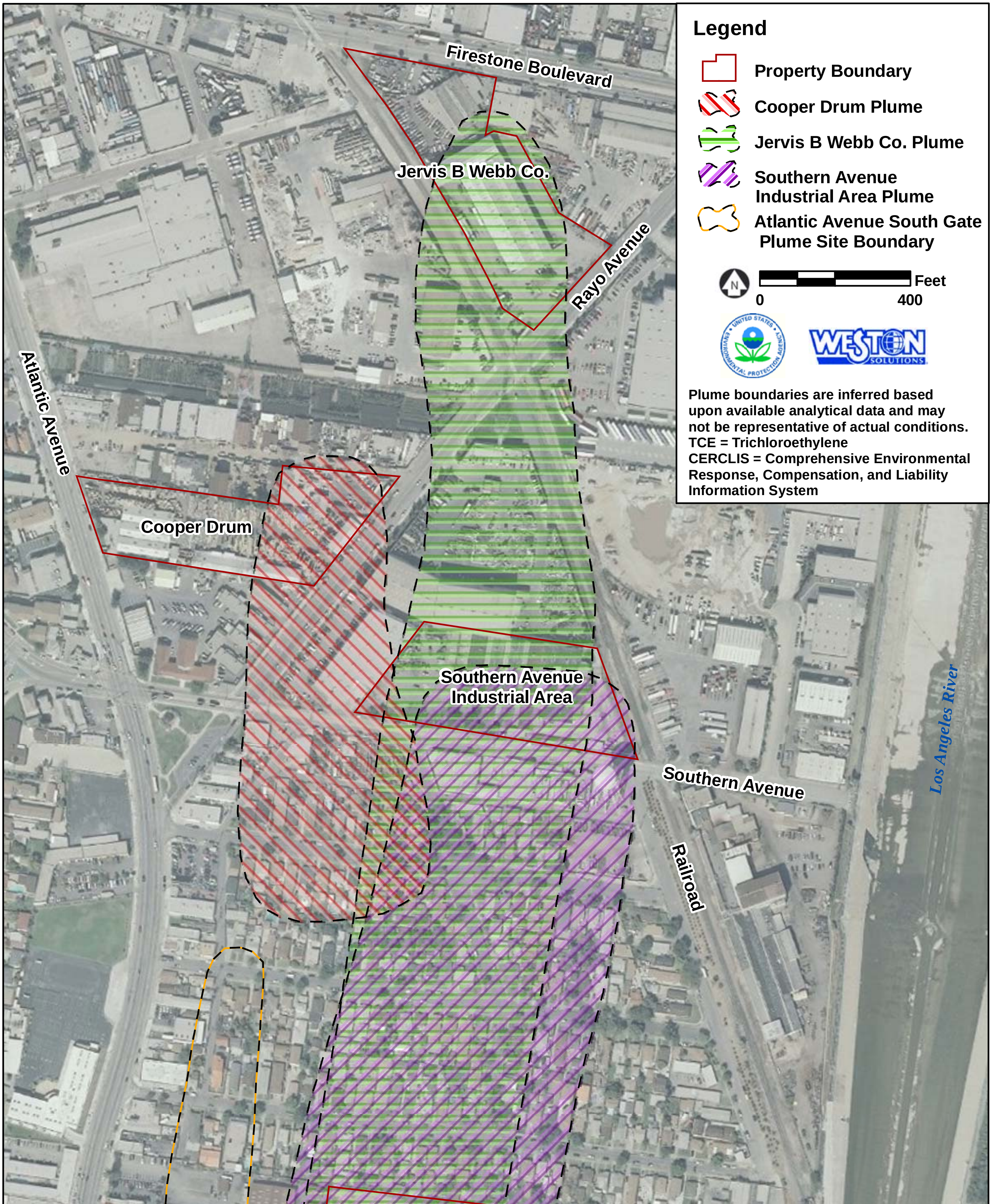


Site Location Map
Atlantic Avenue South Gate Plume
South Gate, California

Figure **2-1**

Site Layout Map
Atlantic Avenue South Gate Plume
South Gate, California

Figure
2-2



Nearby CERCLIS Sites with TCE Groundwater Plumes
Atlantic Avenue South Gate Plume
South Gate, California

Figure 2-3

2.3 Operational History

The area encompassed by the Atlantic Avenue Plume site is primarily used for residential, commercial, and light industrial purposes. Commercial and light industrial operations are generally confined to the western and southern portions of the site, adjacent to Atlantic Avenue. Various operations are conducted within the commercial/industrial areas of the site and associated activities generally include, but are not limited to: automotive service and repair; vehicle towing; vehicle brake manufacturing; commercial printing services; asphalt maintenance; and grocery retail (Google, 2012; WESTON, 2011; App. B).

The portion of the city of South Gate that includes the Atlantic Avenue Plume site was primarily used for agricultural activities from the mid-1800s to the early 1900s. Between approximately 1920 and the 1950s, the majority of the agricultural land was redeveloped into residential and industrial properties. By 1954, activities conducted within the site boundaries were consistent with current operations. Since approximately the 1950s, operations conducted in the areas surrounding the site have included, but are not limited to: drum reconditioning; foundries; machine shops; pesticide production; metal plating; automotive maintenance and repair; and miscellaneous manufacturing (WESTON, 2011).

2.4 Regulatory Involvement

2.4.1 U.S. Environmental Protection Agency

The Atlantic Avenue Plume site is not listed in the Resource Conservation and Recovery Act Information (RCRAInfo) database as of July 3, 2012. In addition, no additional sites were identified in the RCRAInfo database as being within the Atlantic Avenue Plume site boundaries (EPA, 2012a).

Cooper Drum Company (EPA ID No.: CAD055753370)

The Cooper Drum site was placed on the EPA's NPL of hazardous waste sites requiring remedial action on June 14, 2001 (EPA, 2002).

EPA completed a Remedial Investigation (RI) of the site in May 2002, which concluded that subsurface soils and groundwater had been impacted by former drum reconditioning operations at the site. EPA issued a Record of Decision (ROD) for the site in September 2002. In September 2007, EPA completed the Soil and Groundwater Remedial Design reports. Due to the continued migration of contaminated groundwater from the site and the commingling of the Cooper Drum plume with other plumes downgradient of the site, it was determined that additional data should be collected downgradient of the site prior to implementing groundwater remediation (EPA, 2002; EPA, 2012f; WESTON, 2011).

Between 2007 and 2009, EPA conducted groundwater sampling downgradient of the Cooper Drum site to further delineate the contaminated groundwater plume. During the December 2008 sampling event, an anomalously high concentration of TCE (690 µg/L) was identified in a grab groundwater sample that was collected from a location on Duncan Way approximately 150 east of Atlantic Avenue. In May 2009, a groundwater monitoring well was installed at this location and exhibited a TCE concentration of 3,900 µg/L. This previously unidentified TCE groundwater plume was subsequently designated as the Atlantic Avenue South Gate Plume (ITSI, 2010; WESTON, 2011).

In February 2009, EPA issued a Unilateral Administrative Order (UAO) to 43 Potentially Responsible Parties (PRPs) to conduct the remedial action for soil and groundwater. The site has transitioned from a Superfund lead site to a PRP enforcement lead site. EPA is currently overseeing the cleanup of soil and groundwater contamination at the site that is being performed by the PRPs (EPA, 2012f).

Jervis B Webb Company (EPA ID No.: CAD008339467)

The Jervis Webb site was placed on the EPA's NPL of hazardous waste sites requiring remedial action on May 10, 2012. VOCs, including TCE, have been confirmed in the soils and groundwater at the site. TCE has been identified beneath the site at concentrations up to 35,000 µg/L. The extent of the groundwater contamination has not been fully characterized (EPA, 2012c).

Southern Avenue Industrial Area (EPA ID No.: CAN00905902)

The Southern Avenue Industrial Area (formerly Seam Master Industries) site was placed on the EPA's NPL of hazardous waste sites requiring remedial action on May 10, 2012. VOCs, including TCE, have been confirmed in the soils and groundwater at the site. TCE has been identified beneath the site at concentrations up to 17,000 µg/L. The extent of the groundwater contamination has not been fully characterized (EPA, 2012d).

Proposed LAUSD South Region High School #9

As of July 2012, the EPA has had no known involvement with the proposed LAUSD SRHS #9 property (EPA, 2012b).

2.4.2 Regional Water Quality Control Board

The Atlantic Avenue Plume site was not listed in the Geotracker database as of July 3, 2012. The Regional Water Quality Control Board (RWQCB) has had no known involvement with the site (RWQCB, 2012).

2.4.3 Department of Toxic Substances Control

The Atlantic Avenue Plume site was not listed in the California Department of Toxic Substances (DTSC) Envirostor database as of July 3, 2012. The DTSC has had no known involvement with the site (DTSC, 2012).

Proposed LAUSD South Region High School #9

In June 1999, the LAUSD entered into a Voluntary Cleanup Agreement with the DTSC to facilitate remediation of the property. State regulatory oversight of the investigations is conducted by the DTSC's School Property Evaluation and Cleanup Division. Multiple VOC groundwater plumes have been identified at the property and remediation at the site is ongoing (DTSC, 1999; Parsons, 2012a).

2.4.4 County of Los Angeles

The County of Los Angeles' regulatory agencies have had no known involvement with the Atlantic Avenue Plume site.

3.0 INVESTIGATIVE EFFORTS

3.1 Previous Sampling

Cooper Drum Company (EPA ID No.: CAD055753370)

The EPA completed a RI of the site in May 2002. This investigation concluded that subsurface soils and groundwater had been impacted by former drum reconditioning operations at the site. The primary contaminants of concern (CoCs) impacting soil and groundwater at the site were identified as TCE; 1,2,3-trichloropropane (1,2,3-TCP); and 1,2-dichloroethane (DCA). Additional CoCs include: vinyl chloride (VC); 1,2-dichloropropane; 1,1-DCA; 1,1-DCE; cis-1,2-DCE; PCE; trans-1,2-DCE; benzene; and 1,4-dioxane. Additional CoCs for site soils were identified as polychlorinated biphenyls (PCBs); polycyclic aromatic hydrocarbons (PAHs); and lead. The groundwater plume is characterized by relatively high levels of TCE and cis-1,2-DCE (ITSI, 2010; Weston, 2011).

Between 2007 and 2009, EPA conducted groundwater sampling downgradient of the Cooper Drum site to further delineate the contaminated groundwater plume. In December 2008, borings were advanced at the western portion of McCallum Avenue (CPT-46), the western portion of Duncan Way (CPT-47), and the west-central portion of Duncan Way (CPT-48). Discrete-depth sampling was conducted at these locations with sample depths that ranged from 72 to 132 feet below ground surface (bgs). At boring CPT-46, TCE was only detected in the sample collected from 104 feet bgs (2.7 µg/L). At boring CPT-48, TCE was detected in samples collected from 70 feet bgs (1.6 µg/L), 100 feet bgs (7.2 µg/L), and 112 feet bgs (34 µg/L). At boring CPT-47, TCE was detected in samples collected from 70 feet bgs (690 µg/L), 90 feet bgs (6.5 µg/L), and 103 feet bgs (4.1 µg/L). Additional VOCs identified in the sample collected from 70 feet bgs include, but are not limited to: cis-1,2-DCE (130 µg/L); 1,1-DCE (2.1 µg/L); trans-1,2-DCE (1 µg/L); and VC (0.93 µg/L) (ITSI, 2010).

In May 2009, monitoring wells were installed at the locations of CPT-47 and CPT-48 to further define the identified VOC contamination. Well MW-52 was installed at the location of CPT-48 and well MW-56 was installed at the location of CPT-47. The sample collected from MW-52 exhibited detectable concentrations of TCE (8.2 µg/L); cis-1,2-DCE (6.5 µg/L); trans-1,2-DCE (0.78 µg/L) and 1,2-DCE (2.2 µg/L). The sample collected from Well MW-56 exhibited detectable concentrations of TCE (3,900 µg/L); cis-1,2-DCE (290 µg/L); 1,1-DCE (2.2 µg/L); trans-1,2-DCE (11 µg/L); and 1,2-DCE (2.2 µg/L). No additional sampling has been conducted as part of the Cooper Drum investigations to the south of Duncan Way (ITSI, 2010).

Under a UAO issued by EPA in February 2009, the PRPs are remediating the soil and groundwater contamination at the site. A Soil Vapor Extraction (SVE) treatment system was completed for the site and began operating in February 2011. A groundwater treatment system reportedly began operating in fall 2011 to address the contaminated groundwater plume north of Southern Avenue (EPA, 2012f).

The three Cooper Drum monitoring wells most pertinent to the Atlantic Avenue Plume site, which was determined primarily based on their relative locations and screening intervals, are situated on McCallum Avenue and Duncan Way. These wells include MW-38, MW-52, and MW-56. Wells MW-52 and MW-56 were only sampled once in relation to the Cooper Drum investigation, which occurred in May 2009. Well MW-38 was most recently sampled in June 2011 and exhibited relatively low concentrations of TCE and cis-1,2-DCE. Historic TCE and cis-1,2-DCE concentrations at these wells are presented in Table 3-1. The relative locations of these wells to the Atlantic Avenue Plume site are shown in Figure 2-2 (AMEC, 2011).

Table 3-1: Historical Analytical Results for TCE and cis-1,2-DCE at Selected Cooper Drum Monitoring Wells

Well Identification	Screening Interval (feet bgs)	Sample Date	TCE (µg/L)	cis-1,2-DCE (µg/L)
MW-38	56.5 - 66.5	March 2008	1.1	1.2
		May 2009	0.94	1.5
		June 2011	0.67	1.2
MW-52	66.0 - 76.0	May 2009	8.2	6.5
MW-56	62.0 - 72.0	May 2009	3,900	290
TCE MCL = 5.00 µg/L TCE CRSC = 0.21 µg/L			cis-1,2-DCE MCL = 70 µg/L cis-1,2-DCE CRSC = Not Established	
bgs = below ground surface CRSC = Cancer Risk Screening Concentration DCE = dichloroethylene			MCL = Maximum Contaminant Level TCE = trichloroethylene µg/L = micrograms per liter	
Reference: AMEC, 2011				

Proposed LAUSD South Region High School #9

Numerous environmental investigations have been conducted on the LAUSD property since at least 1989. These investigations identified various hazardous substances in the soil and/or groundwater beneath the property including, but are not limited to: mercury, chromium, lead, arsenic, cadmium, zinc, trichloroethane (TCA), DCE, PCE, and PCBs. To facilitate the remediation of the soils and groundwater beneath the proposed school complex, the property was divided into five operable units (OUs). The soil remediation portion of the project was divided into two units: OU1 (north of Tweedy Boulevard) and OU2 (south of Tweedy Boulevard). The groundwater portion of the project was designated OU3. OU4 is no longer part of the project and it was determined that no remediation was necessary in the OU5 area, which would be developed into a private drive. As of February 2010, the soil remediation of OU1 had been completed. Since 2005, over 3,500 soil samples have been collected within OU2 and a soil vapor investigation was conducted. Results of these investigations indicate that remediation of the subsurface soils is required to develop the property. The proposed remediation effort includes the excavation of contaminated soils and the installation of an SVE system (Google, 2012; Parsons, 2008; Weston, 2011).

During the 2007 site-wide groundwater monitoring for OU3, groundwater samples were collected and analyzed from a total of 69 on-site wells and 3 off-site wells. Four areas of the property were identified as VOC source areas. These source areas were generally located in the southwest and southeast portions of the property. The nearest of these source areas to the Atlantic Avenue Plume site was identified on former Parcel 11, which is located approximately 500 feet south-southwest of Cooper Drum well MW-56. VOCs identified from these source areas included, but were not limited to: TCE; PCE; VC; 1,4-dioxane; 1,2,3-TCP; 1,1,1-TCA; 1,1-DCA; and 1,2-DCA (Parsons, 2008).

The three LAUSD SRHS #9 monitoring wells most pertinent to the Atlantic Avenue Plume site, which was determined primarily based on their relative locations and screening intervals, are situated at the northwestern and western portions of the LAUSD property. These wells; which include 039-MW1C, 039-MW2C, and 011-MW1B; were installed primarily to monitor and delineate the TCE plume originating from the VOC source area on former Parcel 11. These wells were most recently sampled by LAUSD in December 2011 and exhibited TCE concentrations of 8.0 µg/L at 039-MW1C, 6.3 µg/L at 039-MW2C, and 510 µg/L at 011-MW1B. Historic TCE and cis-1,2-DCE concentrations at these wells are presented in Table 3-2. The relative locations of these wells to the Atlantic Avenue Plume site are shown in Figure 2-2 (Parsons, 2012b).

Table 3-2: Historical Analytical Results for TCE and cis-1,2-DCE at Selected LAUSD Monitoring Wells

Well Identification	Screening Interval (feet bgs)	Sample Date	TCE (µg/L)	cis-1,2-DCE (µg/L)
039-MW1C	68.2 - 78.2	Sep. 2005	1,100	47
		April 2007	850	41
		March 2008	270	20
		Dec. 2009	180	37
		Dec. 2011	8.0	71
039-MW2C	74.5 - 84.5	March 2008	9.0	1.5
		May 2008	6.2	1.6
		Dec. 2009	6.2	--
		Dec. 2011	6.3	1.7
011-MW1B	59.0 - 69.0	Sep. 2005	1,300	78
		April 2007	790	77
		March 2008	820	76
		Dec. 2011	510	130
TCE MCL = 5.00 µg/L TCE CRSC = 0.21 µg/L			cis-1,2-DCE MCL = 70 µg/L cis-1,2-DCE CRSC = Not Established	
bgs = below ground surface CRSC = Cancer Risk Screening Concentration DCE = dichloroethylene MCL = Maximum Contaminant Level			TCE = trichloroethylene µg/L = micrograms per liter -- = not known or not applicable	
References: Parsons, 2008; Parsons, 2012a; Parsons, 2012b				

3.2 SI Sampling

Between April 2, 2012 and April 9, 2012, WESTON, on behalf of the EPA, conducted groundwater and soil vapor sampling at the Atlantic Avenue Plume site. The general objective of this investigation was to gain a more comprehensive understanding of the Atlantic Avenue Plume including potential source areas, plume boundaries, and levels of contamination. In addition, this investigation allowed for a greater understanding of data gaps that need to be addressed to support the specific objectives of this SI as well as any subsequent HRS characterization activities. Sampling methodology, locations, analyses, and analytical results are summarized below. The Sampling and Analysis Plan (SAP), which was approved by the EPA, is presented in Appendix E.

All samples were submitted to KAP Technologies, Inc. under the EPA Contract Laboratory Program (CLP) for VOC analysis by EPA Contract Laboratory Program Analytical Services (CLPAS) SOM01.2. In addition, selected samples were also submitted for 1,4-dioxane analysis by EPA CLPAS SOM01.2 due to this contaminant having been previously identified in some upgradient locations associated with the Cooper Drum Superfund Site. However, 1,4-dioxane is not currently considered a CoC for the Atlantic Avenue Plume site. The data were validated by the EPA Region 9 Quality Assurance Office. The complete validated analytical results are presented in Appendix F. The sampling locations are shown in Figure 3-1.

3.2.1 Action Levels

In accordance with the HRS, the action levels to establish an observed release to groundwater are significantly above background concentrations. “Significantly above background” is defined as three times the background concentration for all media. If the background concentration is below the analytical quantitation limit, then the default background level is the background sample quantitation limit; “significantly above background” for this scenario is defined as a detect in the media where the analyte was not detected in the background media. Samples collected from the upgradient portion of the groundwater plume will be designated as background samples for HRS purposes.

Sample Location Map
Atlantic Avenue South Gate Plume
South Gate, California

Figure 3-1

3.2.2 Groundwater Sampling

To establish that a release to groundwater has occurred at the Atlantic Avenue Plume site, and to further define the extent of this release in both the shallow Gaspur and perched aquifers, WESTON collected groundwater samples from on-site, upgradient, and downgradient locations. These locations were selected using the groundwater gradient calculated from the June 2011 Cooper Drum site monitoring event for the shallow Gaspur Aquifer, which indicated a south to south-southeasterly flow direction. Samples were collected from four existing monitoring wells and from nine cone penetration test (CPT) borings, which were installed as part of the SI investigation (AMEC, 2011).

Between April 2, 2012 and April 4, 2012, WESTON advanced nine CPT borings, identified as CPT-W1 through CPT-W9, in the vicinity of the Atlantic Avenue Plume site. Three borings were advanced in a generally upgradient locations (CPT-W1 through CPT-W3), three borings were advanced within the current site boundaries (CPT-W4, CPT-W6, and CPT-W8), two borings were advanced in generally cross-gradient locations (CPT-W5 and CPT-W7), and one boring was advanced in a generally downgradient location (CPT-W9). At each of these locations, CPT technology was used to create a lithological profile log of the subsurface to a total depth of 80 feet bgs. The CPT logs were immediately reviewed by WESTON to determine the most appropriate five-foot sampling intervals for the collection of both the perched and shallow Gaspur samples. Perched aquifer samples were collected from eight of the nine CPT locations at depths that ranged from 32 to 39 feet bgs. Due to insufficient groundwater volume and slow recharge rates, a perched aquifer sample was not collected from CPT-W2 and only a partial sample (VOC analysis only) was collected from CPT-W1. Gaspur Aquifer samples were collected from all CPT locations at depths that ranged from 67 to 75 feet bgs. All samples, except as noted above, were analyzed for VOCs and 1,4-dioxane. The CPT boring logs are presented in Appendix G.

On April 9, 2012, WESTON collected groundwater samples from four existing monitoring wells in the vicinity of the site. Two of these wells, MW-38 and MW-52, were located in a cross-gradient direction and two of the wells, MW-56 and 039-MW1C, were located within the current site boundaries. All of these wells are constructed with 10-foot screens that are set within the shallow Gaspur Aquifer and range from 56.5 feet bgs to 78.2 feet bgs. WESTON collected the groundwater samples using “no-purge” passive diffusion sampling techniques by utilizing Passive Diffusion Bags (PDBs), which were installed in the wells on March 26, 2012. Two PDBs were placed in Well MW-38 due to the specific lithology within the screening interval. All samples were analyzed for VOCs. Substances with relatively high water solubility, such as 1,4-dioxane, are not appropriate for passive diffusion sampling due to the membrane of the PDB being hydrophilic, which repels water and water-soluble contaminants.

The groundwater gradient and flow direction were calculated using depth to water measurements collected on April 9, 2012 from three of the groundwater monitoring wells sampled during the SI. Well 039-MW1C was not used for the gradient calculations since top of casing elevation data was not available. The groundwater flow direction for the shallow Gaspur Aquifer was calculated to be to the south-southeast at a gradient of 0.0012 feet/feet. The groundwater flow direction within the perched aquifer is not known since there are no wells in the vicinity of the site that are screened within this aquifer. Depth to water measurements and groundwater elevations are presented on Table 3-3.

Table 3-3: Monitoring Well Groundwater Elevations - April 9, 2012

Well Identification	Screening Interval (ft-bgs)	Historic TOC Elevation (ft-AMSL)[1]	Depth to Groundwater (ft-bgs)	Groundwater Elevation (ft-AMSL)
MW-38	56.5 - 66.5	100.25	50.18	50.07
MW-52	66.0 - 76.0	98.75	49.03	49.72
MW-56	62.0 - 72.0	99.71	49.82	49.89
AMSL = above mean sea level bgs = below ground surface ft = feet			TOC = top of casing 1 = Using National Geodetic Vertical Datum of 1929 (NGVD 29)	
Reference: ITSI, 2010				

Based upon the calculated groundwater flow direction for the shallow Gaspur Aquifer, the sample collected from 68 to 73 feet bgs at CPT-W1 was considered to be the most appropriate Gaspur Aquifer background sample for the SI investigation. This sample did not exhibit concentrations above the Method Reporting Limit (MRL) for: TCE; cis-1,2-DCE; trans-1,2-DCE; or PCE. Based upon this information, an action level for these analytes within shallow Gaspur samples is established as 0.5 µg/L.

The maximum VOC concentrations identified during the investigation in both the shallow Gaspur and perched aquifers were exhibited in the samples collected from CPT-W4, which was located in the southern portion of the alley between Duncan Way and McCallum Avenue. The Gaspur sample exhibited elevated concentrations of TCE (520 µg/L); cis-1,2-DCE (160 µg/L); and trans-1,2-DCE (14 µg/L). The perched sample exhibited elevated concentrations of TCE (490 µg/L) and cis-1,2-DCE (5.3 µg/L). The Gaspur sample collected from Well MW-56, which is located approximately 75 feet southeast of CPT-W4, exhibited a TCE concentration of 140 µg/L, which is significantly lower than the 3,900 µg/L reported in May 2009. However, the well exhibited increased concentrations of TCE degradation products cis-1,2-DCE (860 µg/L) and trans-1,2-DCE (23 µg/L) as compared to the 2009 event (290 µg/L and 11 µg/L, respectively). The Gaspur sample collected from CPT-W3, which was located approximately 110 feet north of CPT-W4, exhibited respective TCE; cis-1,2-DCE; and trans-1,2-DCE concentrations of 92 µg/L, 13 µg/L, and 0.95 µg/L. The perched sample from CPT-W3 also exhibited a detectable TCE concentration of 11 µg/L.

TCE was also identified in the perched sample collected from CPT-W6 (6.6 µg/L) and the Gaspur samples collected from CPT-W2 (8.1 µg/L), CPT-W8 (39 µg/L), and MW-52 (1.5 µg/L).

Cis-1,2-DCE was also identified in the perched sample collected from CPT-W6 (0.68 µg/L) and the Gaspur samples collected from CPT-W2 (21 µg/L), CPT-W8 (4.3 µg/L), lower MW-38 (0.7 µg/L), and MW-52 (5.1 µg/L).

Trans-1,2-DCE was also identified in the Gaspur samples collected from CPT-W2 (6.1 µg/L), CPT-W8 (0.91 µg/L), and MW-52 (1.2 µg/L).

Due to the PDB having been placed approximately six feet above the top of the well screen within Well 039-MW1C during this investigation, the VOC concentration data generated from this well should be considered as an approximation of the actual concentrations within the Gaspur aquifer at this location. Although this data was not included in the discussion above, the TCE and cis-1,2-DCE concentrations identified during this investigation (27 µg/L and 49 µg/L, respectively) are similar to the concentrations reported from this well during the December 2011 LAUSD sampling event (8 µg/L and 71 µg/L, respectively) (Parsons, 2012b).

PCE was identified above the MRL in only one sample during the investigation, which was collected from the perched aquifer at CPT-W1 (3.1 µg/L). 1,4-dioxane was also identified above the MRL in only one sample during the investigation, which was collected from the perched aquifer at CPT-W9 (14 µg/L). This sample also exhibited a methyl tert-butyl ether (MTBE) concentration of 600 µg/L. 1,4-dioxane and MTBE are not considered to be CoCs for the Atlantic Avenue Plume site. No additional VOCs were identified above their respective MRLs during the investigation. Selected sampling results for the perched aquifer are presented in Tables 3-4 and Figure 3-2. Selected sampling results for the Gaspur Aquifer are presented in Table 3-5 and Figure 3-3.

Table 3-4: Site Inspection Groundwater Sampling Results for Selected VOCs - Perched Aquifer

Sample Location	Sample Interval (ft-bgs)	Sample Date	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	PCE (µg/L)
		MCL (µg/L):	5	70	100	5
		CRSC (µg/L):	1	--	--	1.6
CPT-W1	32-37	4/02/12	**3.7**	0.35 (J)[1]	(< 0.5)	**3.1**
CPT-W2	31-36	4/02/12	No Sample Collected			
CPT-W3	33-38	4/04/12	**11**	(< 0.5)	(< 0.5)	(< 0.5)
CPT-W4	33-38	4/04/12	**490**	**5.3**	(< 4.0)	1.8 (J)[1]
CPT-W5	34-39	4/02/12	0.41 (J)[1]	(< 0.5)	(< 0.5)	(< 0.5)
CPT-W6	33.5-38.5	4/04/12	**6.6**	0.68	(< 0.5)	(< 0.5)
CPT-W7	34-39	4/03/12	(< 0.5)	(< 0.5)	(< 0.5)	(< 0.5)
CPT-W8	33.5-38.5	4/03/12	(< 0.5)	(< 0.5)	(< 0.5)	(< 0.5)
CPT-W9	34-39	4/03/12	(< 2.5)	(< 2.5)	(< 2.5)	(< 2.5)

Notes: Values in **Bold** exceed HRS benchmark.
Values in parentheses indicate analyte-specific MRL or laboratory flag
1 = J-flagged due to reported result below the MRL
-- = no value

bgs = below ground surface
CRSC = Cancer Risk Screening Concentration
DCE = dichloroethylene
ft = feet
HRS = Hazard Ranking System
J = Laboratory flag indicating estimated value

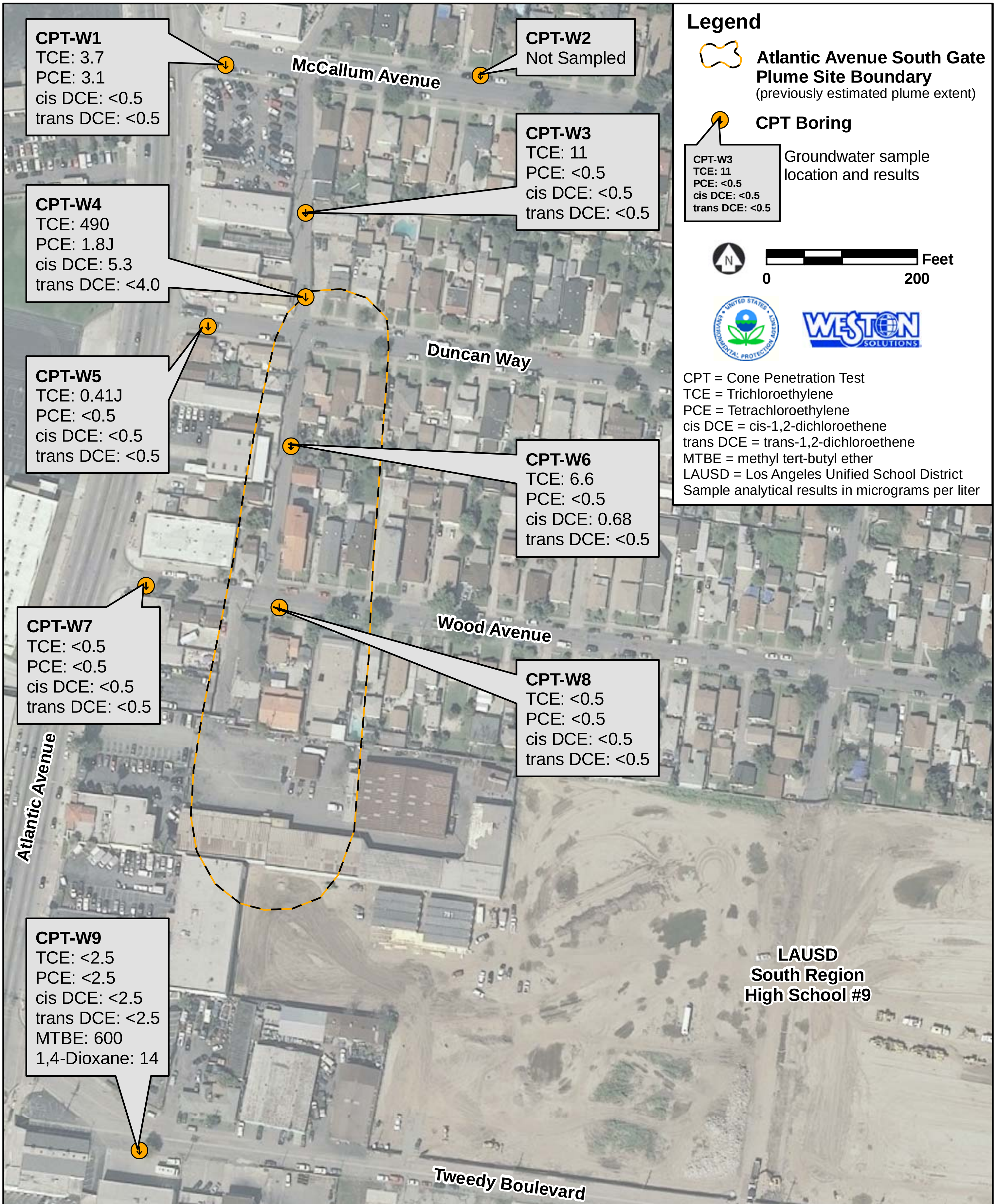
MCL = Maximum Contaminant Level
MRL = Method Reporting Limit
PCE = tetrachloroethylene
TCE = trichloroethylene
µg/L = micrograms per liter

Table 3-5: Site Inspection Groundwater Sampling Results for Selected VOCs - Shallow Gaspur Aquifer

Sample Location	Sample Interval (ft-bgs)	Sample Date	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	PCE (µg/L)
		MCL (µg/L):	5	70	100	5
		CRSC (µg/L):	1	--	--	1.6
		Background Concentration (µg/L):	(< 0.5)	(< 0.5)	(< 0.5)	(< 0.5)
		Action Level (µg/L):	0.5	0.5	0.5	0.5
CPT Borings						
CPT-W1	68-73	4/02/12	(< 0.5)	(< 0.5)	(< 0.5)	(< 0.5)
CPT-W2	69-74	4/02/12	**8.1**	**21**	**6.1**	(< 0.5)
CPT-W3	67-72	4/04/12	**92**	**13**	**0.95**	(< 0.5)
CPT-W4	68-73	4/04/12	**520** **[510]**	**160** **[160]**	**14** **[16]**	(< 4.0) [(< 4.0)]
CPT-W5	67-72	4/02/12	(< 0.5)	(< 0.5)	(< 0.5)	(< 0.5)
CPT-W6	68-73	4/04/12	(< 0.5)	(< 0.5)	(< 0.5)	(< 0.5)
CPT-W7	69-74	4/03/12	(< 0.5)	(< 0.5)	(< 0.5)	(< 0.5)
CPT-W8	68-73	4/03/12	**39** **[30]**	**4.3** **[4.3]**	**0.91** **[0.97]**	(< 0.5) [(< 0.5)]
CPT-W9	70-75	4/03/12	(< 0.5)	(< 0.5)	(< 0.5)	(< 0.5)
Monitoring Wells						
MW-38	59-61	4/09/12	(< 0.5)	0.36 (J)^{1}	(< 0.5)	(< 0.5)
	63-65	4/09/12	0.39 (J)^{1}	**0.7**	(< 0.5)	(< 0.5)
MW-52	71-73	4/09/12	**1.5**	**5.1**	**1.2**	(< 0.5)
MW-56	66-68	4/09/12	**140** **[150]**	**860** **[830]**	**23** **[22]**	(< 5.0) [(< 5.0)]
039-MW1C	61-63	4/09/12	**27**^{2}	**49**^{2}	(< 0.5)^{2}	(< 0.5)^{2}

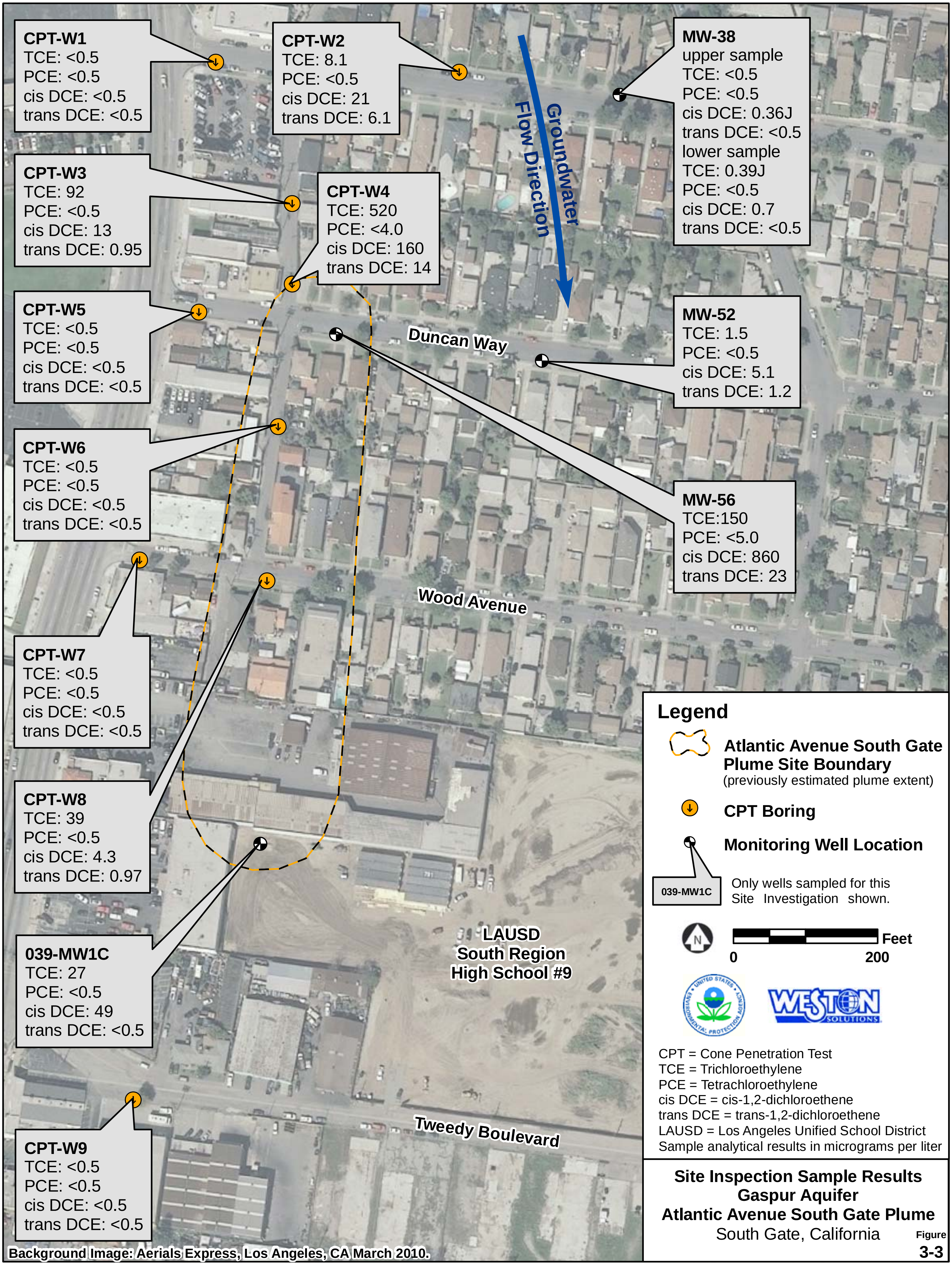
Notes: Values in **Bold** exceed action level
Values in parentheses indicate analyte-specific MRL or laboratory flag
Values in brackets are results from duplicate samples
1 = J-flagged due to reported result below the MRL
2 = Value is approximate due to PDB set at approximately 6 ft above top of screen
-- = no value

bgs = below ground surface
CRSC = Cancer Risk Screening Concentration
DCE = dichloroethylene
ft = feet
J = Laboratory flag indicating estimated value
MCL = Maximum Contaminant Level
MRL = Method Reporting Limit
PCE = tetrachloroethylene
PDB = Passive Diffusion Bag
TCE = trichloroethylene
µg/L = micrograms per liter



Site Inspection Sample Results
Perched Aquifer
Atlantic Avenue South Gate Plume
South Gate, California

Figure
3-2



Site Inspection Sample Results
Gaspur Aquifer
Atlantic Avenue South Gate Plume
South Gate, California

Figure
3-3

3.2.3 Soil Vapor Sampling

On April 6, 2012, WESTON conducted a limited soil vapor survey in the vicinity of the Atlantic Avenue Plume site. One soil vapor probe was installed at each of the nine CPT boring locations (CPT-W1 through CPT-W9) at depths that ranged from 8 feet bgs to 10 feet bgs. The specific depths were determined in the field based on the CPT lithological logs, which are presented in Appendix G. The probes were installed during the completion of the CPT boreholes, which occurred between April 2, 2012 and April 4, 2012. The soil vapor analysis was conducted by an on-site mobile laboratory.

During the limited soil vapor survey, only two samples exhibited detectable concentrations of VOCs. The sample collected from 9 feet bgs at CPT-W3 exhibited a TCE concentration of 0.14 µg/L and a PCE concentration of 0.10 µg/L. The duplicate sample collected from CPT-W6 at 10 feet bgs also exhibited a PCE concentration 0.11 µg/L. The reported MRL for both TCE and PCE is 0.10 µg/L. For comparative purposes, the residential California Human Health Screening Levels (CHHSLs) for TCE and PCE in shallow soil gas are 0.53 µg/L and 0.18 µg/L, respectively. The limited soil vapor survey results are presented in Table 3-6.

Table 3-6: Site Inspection Soil Vapor Sampling Results - April 6, 2012

Sample Location	Sample Depth (ft-bgs)	Purge Volume	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	PCE (µg/L)
Residential CHHSL (µg/L):			0.53	15.9	31.9	0.18
CPT-W1	9.5	7	(< 0.10)	(< 0.10)	(< 0.10)	(< 0.10)
CPT-W2	8.0	7	(< 0.10)	(< 0.10)	(< 0.10)	(< 0.10)
CPT-W3	9.0	3	**0.14**	(< 0.10)	(< 0.10)	**0.10**
CPT-W4	9.5	1	(< 0.10)	(< 0.10)	(< 0.10)	(< 0.10)
		3	(< 0.10)	(< 0.10)	(< 0.10)	(< 0.10)
		7	(< 0.10)	(< 0.10)	(< 0.10)	(< 0.10)
CPT-W5	10.0	7	(< 0.10)	(< 0.10)	(< 0.10)	(< 0.10)
CPT-W6	10.0	7	(< 0.10) [(< 0.10)]	(< 0.10) [(< 0.10)]	(< 0.10) [(< 0.10)]	(< 0.10) **[0.11]**
CPT-W7	10.0	7	(< 0.10)	(< 0.10)	(< 0.10)	(< 0.10)
CPT-W8	9.0	7	(< 0.10)	(< 0.10)	(< 0.10)	(< 0.10)
CPT-W9	10.0	7	(< 0.10)	(< 0.10)	(< 0.10)	(< 0.10)

Notes: Values in **Bold** exceed MRL
Values in parentheses indicate analyte-specific MRL

bgs = below ground surface
CHHSL = California Human Health Screening Level
DCE = dichloroethylene
ft = feet
MRL = Method Reporting Limit
PCE = tetrachloroethylene
TCE = trichloroethylene
µg/L = micrograms per liter

3.2.4 Deviations from the SAP

The following deviations from the March 2012 Atlantic Avenue Plume site SAP occurred during the field work:

- CPT boring CPT-W9 was relocated to the south side of Tweedy Boulevard, approximately 90 feet west-southwest of the location proposed in the SAP. The location was moved due to sidewalk improvements occurring along the north side of Tweedy Boulevard during the sampling event.

- A CPT lithological log boring was not advanced at CPT-W2 due to a previous CPT log having been identified at a location approximately 15 east of the sampling location. This log, which is identified as CPT-44 and is included with the SI CPT logs in Appendix G, was used to determine the most appropriate sampling depths at CPT-W2. Boring CPT-44 was advanced during downgradient groundwater monitoring of the Cooper Drum Superfund site in February 2007 (URS, 2007).

- A sample was not collected from the perched aquifer at boring CPT-W2 due to insufficient groundwater and slow recharge rates.

- The sample collected from the perched aquifer at boring CPT-W1 was not submitted for 1,4-dioxane analysis due to insufficient groundwater and slow recharge rates.

- The PDB placed into LAUSD Well 039-MW1C was improperly placed at approximately six feet above the top of the screening interval, which is reported as 68.2-78.2 feet bgs. The actual sample depth for this groundwater sample was approximately 61-63 feet bgs as opposed to the 72-74 feet bgs proposed in the SAP. The improper PDB placement primarily occurred due to the well boring having a reported total depth of 90 feet as opposed to the actual total well casing depth of approximately 79 feet, which subsequently resulted in the PDB tether being constructed to the wrong length.

- The SAP proposed that five equipment blank samples were to be collected during the investigation. An equipment blank sample was inadvertently not collected on the first day of sampling. Equipment blanks were collected on the second and third days of sampling, so the additional three equipment blank samples were not needed.

- Two field blank samples were collected and submitted during the investigation, which were not proposed in the SAP. These samples were collected since the equipment blank samples were composed of store-bought distilled water and it was necessary to verify that this water did not contain detectable concentrations of VOCs.

4.0 HAZARD RANKING SYSTEM FACTORS

4.1 Sources of Contamination

For HRS purposes, a source is defined as an area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from migration of a hazardous substance. Sources do not include those volumes of air, ground water, surface water, or surface water sediments that have become contaminated by migration, except: in the case of either a groundwater plume with no identified source or contaminated surface water sediments with no identified source, the plume or contaminated sediments may be considered a source.

For HRS purposes, the Atlantic Avenue Plume site is considered to be a contaminated VOC groundwater plume with no identified source. The plume is defined by relatively high concentrations of TCE and TCE degradation products, primarily cis-1,2-DCE, within the shallow Gaspur aquifer (WESTON, 2011).

Although the source of the VOC contamination remains unidentified for the purposes of this SI, the analytical data collected from the perched and Gaspur aquifers suggests that the source is originating in the vicinity of boring CPT-W4 and is unlikely to be related to the previously identified VOC sources associated with the adjacent Superfund sites (i.e., Cooper Drum Company, Jervis B. Webb, Southern Avenue Industrial Area) or the LAUSD SRHS #9 property. CPT-W4 was located in the unnamed alley approximately 25 feet north of Duncan Way and approximately 170 feet east of Atlantic Avenue. This alley is bound to the west by eight county parcels within the 9600 block of Atlantic Avenue and to the west by residential properties. The Atlantic Avenue parcels are currently occupied by four commercial and/or light industrial businesses, although only the southern two of these facilities appeared to be active at the time of the SI sampling event. VOCs that may have been released from one or more of these facilities represent a potential source for the impacted groundwater identified in the perched and Gaspur aquifers. A summary of these businesses is presented in Table 4-1 (App. B).

Table 4-1: Summary of Businesses Located on East Side of 9600 Block of Atlantic Avenue

Business Name	Business Address	Assessor Parcel Numbers	Business Type	Active During SI?
Larry's Maytag	9640 Atlantic Ave.	6222-032-008	Home Appliance Repair	Yes
Pro Speed Sport Tuning	9636 Atlantic Ave.	6222-032-007	Wholesale Used and New Auto Parts	Yes
Automotive Balancing Service (ABS)	9624 Atlantic Ave.	6222-032-006 6222-032-005	High-performance engine balancing	No
Easy Auto Sales	9620 Atlantic Ave.	6222-032-004 6222-032-003 6222-032-002 6222-032-001	Used Auto Sales	No
Reference: Appendix B				

An additional potential source for the VOCs identified during the Atlantic Avenue Plume SI sampling event is the City of South Gate's main sanitary sewer line, which is located in the immediate vicinity of CPT-W4 and is oriented to follow the approximate centerline of the unnamed alley between Duncan Way and McCallum Avenue. The construction details of this line are not known; however, the line is expected to be constructed of concrete and to be situated approximately 5 to 10 feet bgs. There is the potential that if this portion of the line was damaged, and if VOCs originating from an upstream source were present within the line, these contaminants could have been released to the subsurface and subsequently impacted the underlying aquifers.

4.2 Groundwater Pathway

In determining a score for the groundwater migration pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to groundwater; 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and 3) the people (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on the number of people who regularly obtain their drinking water from wells that are located within 4 miles of the site. The HRS emphasizes drinking water usage over other uses of groundwater (e.g., food crop irrigation and livestock watering), because, as a screening tool, it is designed to give the greatest weight to the most direct and extensively studied exposure routes.

4.2.1 Hydrogeological Setting

The Atlantic Avenue Plume site lies within the Central Subbasin in the Coastal Plain of the Los Angeles Groundwater Basin. The Central Subbasin is bound to the north by a surface divide called the La Brea high; to the northeast and east by the less permeable tertiary rocks of the Elysian, Repetto, Merced, and Puente Hills; to the southeast by Coyote Creek; and to the southwest by the Newport Inglewood fault system and the Newport Inglewood uplift. The Los Angeles and San Gabriel rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean. The regional groundwater flow direction within the subbasin is generally to the southwest at the northeastern portion of the subbasin and shifts to the south in the central portion of the subbasin. The average net annual precipitation in the Central Subbasin is approximately 12 inches (DWR, 2004; WRD, 2011).

Throughout the Central Subbasin, groundwater occurs in Holocene alluvium, the upper Pleistocene Lakewood Formation, and the lower Pleistocene San Pedro Formation. The aquifers underlying the site are, in descending order: the Gaspur, Exposition, Gage/Gardena, Jefferson, Lynwood, Silverado, and Sunnyside. Underlying the Recent alluvium (Gaspur), sediments of the upper Pleistocene Lakewood Formation (Exposition and Gage/Gardena) are present to a depth of approximately 300 to 400 feet bgs. Sediments of the lower Pleistocene San Pedro Formation (Lynwood through Sunnyside) unconformably underlie the Lakewood Formation and extend to approximately 1,300 feet (DWR, 1961; DWR, 2004).

Throughout much of the subbasin, the Pleistocene-age aquifers are under confined conditions due to the presence of fine-grained, low-permeability interbedded sediments. Although these fine-grained sediments, or aquicludes, generally restrict the downward migration of groundwater from overlying aquifers, semipermeable zones within the aquicludes allow aquifers to be interconnected in some areas. Aquifer interconnection within 2 miles of the site has been established between the Gaspur through Gage/Gardena and between the Jefferson through Silverado. Aquifer interconnection between the Gage/Gardena and Jefferson, and between the Silverado and Sunnyside, has not been established within 2 miles of the site (DWR, 1961; DWR, 2004).

During the SI sampling investigation, CPT technology was used to estimate the subsurface lithology at the Atlantic Avenue Plume site to a total depth of 80 feet bgs. Based upon the CPT boring logs, which are presented in Appendix G, the geologic materials in the unsaturated zone between ground surface and the top of the Gaspur Aquifer are primarily composed of clays to sandy silts with interbedded lenses of silty sands to sands. These less permeable clays and silts have been previously described as correlating with the Bellflower Aquiclude. Interbedded within the Bellflower Aquiclude are discontinuous lenses of silty-sands that may allow for the presence of one or more perched aquifers. Within the site boundaries, a perched aquifer was identified with a prominent series of silty sands and sands that was typically found between approximately 30 and 38 feet bgs. The groundwater flow direction with this perched aquifer is not known; however, it has been previously reported that groundwater flow direction within the perched aquifers in the vicinity of the site are variable and highly sensitive to lithologic variations, groundwater extraction, and/or surface water recharge. Previous investigations have reported that the Gaspur Aquifer occurs in the vicinity of the site from approximately 60 to 115 feet bgs. During the SI investigation, the coarser sands correlating to the shallow Gaspur Aquifer were typically found at about 65 to 75 feet bgs and were underlain by interbedded silty sands to sandy silts to the total depth of the borings at 80 feet bgs. Based upon depth to groundwater data collected during this investigation from three existing monitoring wells, the shallow Gaspur groundwater flow direction was calculated to be towards the south-southeast at a gradient of 0.0012 feet/feet (ITSI, 2010; Parsons, 2008).

4.2.2 Groundwater Targets

Twenty-six distinct water purveyors were identified as operating public drinking water wells within four miles of the Atlantic Avenue Plume site. A summary of the systems operated by these purveyors is presented in Table 4-2. For HRS purposes, only those wells identified with screening interval depths that correspond to the Lakewood Formation aquifers (i.e., Exposition and Gage/Gardena), and that were identified as being within four miles of the geometric center of the site, were evaluated as part of this SI. Additional information on the purveyors that operate the evaluated wells is provided below and a summary of these wells is presented in Table 4-3 (EPA, 2011a).

The nearest public drinking water well to the Atlantic Avenue Plume site that was identified with a screening interval depth corresponding to a Lakewood Formation aquifer is Well 25. This well, which is operated by the City of South Gate Water (CoSG) Division, is located approximately 0.59 mile northeast of the geometric center of the site (EPA, 2011a; App. C-1).

<u>City of South Gate</u>

The CoSG Water Division operates a blended drinking water system that serves a population of approximately 96,375 and consists of seven active wells (Wells 14, 18, 19, 24, 25, 26, and 28), three standby wells (13, 23, and 27), and one inactive well (Well 22-B). In addition, the City previously operated at least seven other wells (Wells 2, 7, 8, 9, 12, 20, and 22-A), which have since been destroyed (CDPH, 2012e; App. C-1).

The CoSG obtains 100 percent of its drinking water from groundwater; however, it does maintain two connections with the Metropolitan Water District (MWD) for emergency supply. All ten of the active and/or standby wells maintained by the city are located within 4 miles of the site; however, only two of these wells (Well 24 and Well 25) are reported to have screening intervals at depths consistent with the Lakewood Formation aquifers. These wells are located in near proximity to each other at approximately 0.6 mile northeast of the geometric center of the Atlantic Avenue Plume site (CDPH, 2012e; EPA, 2011a, App. C-1).

During routine water quality sampling of the CoSG system in April 2012, Well 24 exhibited a TCE concentration of 0.77 µg/L. TCE was not detected above the reporting limit of 0.5 µg/L in Well 25. PCE, cis-1,2-DCE, and trans-1,2-DCE were not detected in either of these wells. The MCL for TCE is 5 µg/L (CDPH, 2012d).

Golden State Water Company - Bell/Bell Gardens

The Golden State Water Company (GSWC) [formerly the Southern California Water Company (SCWC)], Bell/Bell Gardens district operates a blended drinking water system that serves a population of approximately 24,529 and includes five active wells (Bissell 2, Clara 2, Gage 2, Otis 3, and Watson 1), two standby wells (Gage 1 and Priory 2), and two inactive wells (Bissell 1 and Chanslor). In addition, the district has constructed a new well (Bissell 3) that is not yet active, and has previously operated at least six other wells (Clara 1, Darwell 1, Florence 1, Hoffman 2, Otis 1, and Otis 2), which have since been either destroyed or abandoned (CDPH, 2012e; App. C-2).

The GSWC-Bell/Bell Gardens district obtains approximately 99 percent of its drinking water from groundwater. The remaining 1 percent is purchased surface water from the MWD. With respect to regional groundwater flow, the system is located in a generally upgradient (north-northeasterly) direction from the Atlantic Avenue Plume site. All seven of the active and/or standby wells maintained by the district are located within 4 miles of the site; however, only five of these wells (Clara 2, Gage 1, Gage 2, Priory 2, and Watson 1) are reported to have screening intervals at depths consistent with the Lakewood Formation aquifers. Clara 2 does not appear in the GIS Report provided by EPA; however, this well is approximately collocated with the former Clara 1 well (CDPH, 2012e; EPA, 2011a, App. C-2).

During routine water quality sampling of the GSWC-Bell/Bell Gardens system in May 2012, Clara 2 exhibited a TCE concentration of 1.5 µg/L and a PCE concentration of 1.5 µg/L, Gage 2 exhibited a TCE concentration of 0.52 µg/L and a PCE concentration of 3.4 µg/L, and Watson 1 exhibited a TCE concentration of 4.5 µg/L and a PCE concentration of 6.9 µg/L. As of December 2009, Watson 1 was being treated for TCE and PCE. Standby well Gage 1 was last sampled in July 2003 and exhibited a TCE concentration of 5.3 µg/L and a PCE concentration of 16 µg/L. Standby well Priory 2 was last sampled in February 2008 and exhibited a TCE concentration of 1.7 µg/L and a PCE concentration of 1.7 µg/L. Cis-1,2-DCE and trans-1,2-DCE were not detected during the most recent sampling of these wells. The MCL for both TCE and PCE is 5 µg/L (CDPH, 2012b; App. C-2).

City of Lynwood

The City of Lynwood (CoL) Water Department operates a drinking water system that serves a population of approximately 65,965 and includes five active wells (Wells 5, 8, 9, 11, and 19), no designated standby wells, and seven inactive wells (Wells 1, 3, 4, 6, 7, 15A, and 20). In addition, the City previously operated at least five other wells (Wells 2, 10, 17A, 17B, and 18), which have since been destroyed (CDPH, 2012e; App. C-3).

The CoL obtains approximately 98 percent of its drinking water from groundwater. The remaining 2 percent is imported surface water purchased from the MWD. With respect to regional groundwater flow, the system is located in a generally downgradient (south-southwesterly) direction from the Atlantic Avenue Plume site. All five of the active wells maintained by the city are located within 4 miles of the site; however, only four of these wells (Wells 8, 9, 11, and 19) are reported to have screening intervals at depths consistent with the Lakewood Formation aquifers (EPA, 2011a, App. C-3).

During routine water quality sampling of the CoL system that occurred between October 2011 and May 2012, Well 8 exhibited a PCE concentration of 2.2 µg/L, Well 11 exhibited a PCE concentration of 3.0 µg/L, and Well 19 exhibited a PCE concentration of 1.0 µg/L. PCE was not detected in Well 9 during the most recent sampling event. In addition, TCE, cis-1,2-DCE, and trans-1,2-DCE were not detected in any of the four wells during the most recent sampling event. The MCL for PCE is 5 µg/L (CDPH, 2012d).

Maywood Mutual Water Company #3

The Maywood Mutual Water Company (MWC) #3 purveyor operates a drinking water system that serves a population of approximately 9,500 and includes three active wells [Prospect 1, Well 4 (District 4), and Well 7 (Warehouse 7)] and no designated standby wells. Maywood MWC #3 previously operated at least two other wells (57^{th} Street 3 and District Plant 2), which have since been either destroyed or abandoned (CDPH, 2012e; App. C-4).

The Maywood MWC #3 obtains 100 percent of its drinking water from groundwater; however, it does maintain a connection with the MWD for emergency supply. With respect to regional groundwater flow, the system is located in a generally upgradient (northerly) direction from the Atlantic Avenue Plume site. All three of the wells maintained by the purveyor are located within 4 miles of the site and have all been reported to have screening intervals at depths consistent with the Lakewood Formation aquifers. Well 7 does not appear in the GIS Report provided by EPA; however, this well is approximately collocated with the former 57^{th} Street 3 well (CDPH, 2012e; EPA, 2011a, App. C-4).

During routine water quality sampling of the Maywood MWC #3 system that occurred between July 2011 and May 2012, Prospect 1 exhibited a TCE concentration of 7.0 µg/L, Well 4 exhibited a TCE concentration of 0.82 µg/L, and Well 7 exhibited a TCE concentration of 3.1 µg/L. PCE, cis-1,2-DCE, and trans-1,2-DCE were not detected during the most recent sampling events in any of the three wells. The MCL for TCE is 5 µg/L (CDPH, 2012c).

Walnut Park Mutual Water Company

The Walnut Park MWC purveyor operates a drinking water system that serves a population of approximately 17,000 and includes two active wells (Wells 10 and 11) and no designated standby wells. In addition, the purveyor has constructed a new well (Well 12) that is not yet active, and has previously operated at least two other wells (Wells 8 and 9), which have since been destroyed (CDPH, 2012e; App. C-5).

The Walnut Park MWC obtains 100 percent of its drinking water from groundwater; however, it does maintain a connection with the MWD for emergency supply. With respect to regional groundwater flow, the system is located in a generally cross-gradient (northwesterly) direction from the Atlantic Avenue Plume site. Both of the wells maintained by the purveyor are located within 4 miles of the site and have both been reported to have screening intervals at depths consistent with the Lakewood Formation aquifers (CDPH, 2012e; EPA, 2011a, App. C-5).

During routine water quality sampling of the Walnut Park MWC system that occurred between January 2011 and January 2012, neither of the two active wells exhibited detectable concentrations of TCE, PCE, cis-1,2-DCE, nor trans-1,2-DCE (CDPH, 2012a).

City of Compton

The City of Compton Water Department operates a drinking water system that serves a population of approximately 71,000 and includes seven active wells (Wells 11, 13, 15, 16, 17, 18, and 19) and no designated standby wells. In addition, the department has constructed a new well (Well 20) that is not yet active, and has previously operated at least ten other wells (Richland 1, Richland 2, Well 1, Well 2, Well 6, Well 8, Well 9, Well 10, Well 12, Well 14, and Well 20) which have since been either destroyed or abandoned (CDPH, 2012e; App. C-6).

The City of Compton obtains approximately 50 percent of its drinking water from groundwater. The remaining 50 percent is imported surface water purchased from the MWD. With respect to regional groundwater flow, the system is located in a generally downgradient (south-southwesterly) direction from the Atlantic Avenue Plume site. One of the seven wells maintained by the city (Well 18) is located within 4 miles of the site. Well 18 is reported to have a screening interval at a depth consistent with the Lakewood Formation aquifers (EPA, 2011a, App. C-6).

During routine water quality sampling of the City of Compton system in April 2012, Well 18 exhibited a PCE concentration of 0.6 µg/L. TCE, cis-1,2-DCE, and trans-1,2-DCE were not detected in Well 18 during the most recent sampling event. The MCL for PCE is 5 µg/L (CDPH, 2012d).

Table 4-2: Summary of Water Purveyors Operating Wells within 4 Miles of the Site

Water Purveyor	Distance to Nearest Well[1]	Direction from Site[2]	Imports Water? (Y/N)	Percent Imported Water[3]	Total No. of Wells[4]	No. of Wells w/in 4 mi.	Shallow Wells? (Y/N)[5]	No. of Shallow Wells w/in 4 mi.	Total Population Served
City of South Gate	0 - 0.25	Various	N	0	10	10	Y	2	96,375
Tract 180 MWC	1 - 2	North *(upgradient)*	N	0	2	2	--	--	17,000
GSWC - Bell/Bell Gardens	1 - 2	North-Northeast *(upgradient)*	Y	1	7	7	Y	5	24,529
City of Huntington Park	1 - 2	North-Northwest *(upgradient)*	Y	20	6	6	--	--	21,740
Tract 349 MWC	1 - 2	North-Northwest *(upgradient)*	N	0	2	2	--	--	7,500
City of Downey	1 - 2	East *(cross-gradient)*	Y	4	20	17	--	--	113,000
Rancho Los Amigos Medical Center	1 - 2	Southeast *(cross-gradient)*	N	0	3	3	--	--	2,000
City of Lynwood	1 - 2	South-Southwest *(downgradient)*	Y	2	5	5	Y	4	65,965
GSWC - Hollydale	1 - 2	South-Southeast *(downgradient)*	N	0	2	2	--	--	5,518
Maywood MWC #3	2 - 3	North *(upgradient)*	N	0	3	3	Y	3	9,500
Maywood MWC #2	2 - 3	North *(upgradient)*	Y	2	2	2	--	--	6,700
City of Bell/Bell Gardens	2 - 3	North-Northeast *(upgradient)*	Y	31.4	1	1	--	--	5,500
Lynwood Park MWC	2 - 3	Southwest *(downgradient)*	N	0	3	3	--	--	1,650

1 = Distance in miles from Geometric Center of Site
2 = Approximate; Based on Primary Service Area and South to Southwest Groundwater Flow
3 = Imported Water Includes: Surface Water; Purchased Water; Recycled Water
4 = Includes Active and Standby Status
5 = Shallow wells are defined as those with screening interval depths that correspond to the Lakewood Formation aquifers (i.e., Exposition and Gage/Gardena)

-- = Not Known and/or Not Applicable
mi. = mile
MWC = Mutual Water Company
No. = number
SCWC = Golden State Water Company [formerly Southern California Water Company (SCWC)]
w/in = within

References: CDPH, 2012e; EPA, 2011a; Google, 2012; WESTON, 2011; App. C-1, C-2, C-3, C-4, C-5, C-6

Water Purveyor	Distance to Nearest Well[1]	Direction from Site[2]	Imports Water? (Y/N)	Percent Imported Water[3]	Total No. of Wells[4]	No. of Wells w/in 4 mi.	Shallow Wells? (Y/N)[5]	No. of Shallow Wells w/in 4 mi.	Total Population Served
Park Water Company - Lynwood	2 - 3	South-Southwest *(downgradient)*	Y	85	2	1	--	--	17,800
City of Vernon	3 - 4	North-Northwest *(upgradient)*	Y	11	8	1	N	--	45,000
City of Commerce	3 - 4	North-Northeast *(upgradient)*	Y	--	4	3	--	--	1,348
Maywood MWC #1	3 - 4	North *(upgradient)*	Y	20	2	2	N	--	5,500
California Water Service Company - ELA	3 - 4	North *(upgradient)*	Y	--	12	1	--	--	149,316
Walnut Park MWC	3 - 4	Northwest *(cross-gradient)*	Y	2	2	2	Y	2	17,000
SCWC - Florence/Graham	3 - 4	Northwest *(cross-gradient)*	Y	34	6	1	Y	0	31,314
SCWC - Willowbrook	3 - 4	Southwest *(downgradient)*	Y	--	2	2	--	--	4,597
Sativa - L.A. CWD	3 - 4	Southwest *(downgradient)*	N	0	3	3	--	--	6,813
Park Water Company - Bellflower/Norwalk	3 - 4	East-Southeast *(cross-gradient)*	Y	74	9	1	--	--	67,200
City of Compton	3 - 4	South-Southwest *(downgradient)*	Y	50	7	1	Y	1	71,000
Midland Park Water Trust	3 - 4	South-Southwest *(downgradient)*	N	0	1	1	--	--	300
City of Paramount	3 - 4	South-Southeast *(downgradient)*	Y	--	3	1	--	--	54,098

1 = Distance in miles from Geometric Center of Site
2 = Approximate; Based on Primary Service Area and South to Southwest Groundwater Flow
3 = Imported Water Includes: Surface Water; Purchased Water; Recycled Water
4 = Includes Active and Standby Status
5 = Shallow wells are defined as those with screening interval depths that correspond to the Lakewood Formation aquifers (i.e., Exposition and Gage/Gardena)

-- = Not Known and/or Not Applicable
mi. = mile
MWC = Mutual Water Company
No. = number
SCWC = Golden State Water Company [formerly Southern California Water Company (SCWC)]
w/in = within

References: References: CDPH, 2012e; EPA, 2011a; Google, 2012; WESTON, 2011; App. C-1, C-2, C-3, C-4, C-5, C-6

Table 4-3: Summary of Evaluated Public Drinking Water Supply Wells

Well Name	Distance from site[1]	Well Status	First Perforation (ft bgs)	Total Well Depth (ft)	TCE Result (µg/L)	TCE Date	PCE Result (µg/L)	PCE Date
City of South Gate								
Well 24	½ - 1	Active	310	1,266	0.77	Apr. 2012	ND	Apr. 2012
Well 25	½ - 1	Active	303	1,325	ND	Apr. 2012	ND	Apr. 2012
GSWC - Bell/Bell Gardens								
Clara 2	2 - 3	Active	330	970	1.5	May 2012	1.5	May 2012
Gage 1	2 - 3	Standby	282	514	5.3	July 2003	16	July 2003
Gage 2	2 - 3	Active	290	573	0.52	May 2012	3.4	May 2012
Priory 2	1 - 2	Standby	368	613	1.7	Feb. 2008	1.7	Feb. 2008
Watson 1[3]	1 - 2	Active	243	456	4.5	May 2012	6.9	May 2012
City of Lynwood								
Well 8	1 - 2	Active	161	803	ND	Jan. 2012	2.2	Apr. 2012
Well 9	2 - 3	Active	323	787	ND	Jan. 2012	ND	Apr. 2012
Well 11	2 - 3	Active	310	911	ND	Mar 2012	3.0	May 2012
Well 19	2 - 3	Active	250	878	ND	Oct. 2011	1.0	Apr. 2012
Maywood MWC #3								
Prospect 1	2 - 3	Active	Exposition[2]	--	7.0	Sep. 2011	ND	Jul. 2011
Well 4	2 - 3	Active	Exposition[2]	--	0.82	Apr. 2012	ND	Apr. 2012
Well 7	3 - 4	Active	Exposition[2]	--	3.1	May 2012	ND	Jan. 2012
Walnut Park MWC								
Well 10	3 - 4	Active	205	--	ND	Jan. 2012	ND	Jan. 2012
Well 11	3 - 4	Active	203	--	ND	Jan. 2011	ND	Jan. 2011
City of Compton								
Well 18	3 - 4	Active	260	850	0.6	Apr. 2012	ND	Apr. 2012

1 = Approximate distance in miles from geometric center of site
2 = Specific screening intervals not known
3 = Well treated for TCE and PCE at wellhead

bgs = below ground surface
ft = feet
ND = analyte not detected at or above laboratory detection limit
MWC = Mutual Water Company

PCE = tetrachloroethylene
TCE = trichloroethylene
µg/L = micrograms per liter
-- = not known or not applicable

References: CDPH, 2012a; CDPH, 2012b; CDPH, 2012c; CDPH, 2012d; CDPH, 2012e; EPA, 2011a; App. C-1, C-2, C-3, C-4, C-5, C-6

4.2.3 Groundwater Pathway Conclusion

Based on the results of the April 2012 SI groundwater sampling event at the Atlantic Avenue Plume site, a release of TCE, cis-1,2-DCE, and trans-1,2-DCE to the shallow Gaspur Aquifer has been established by chemical analysis. For HRS purposes, a release to groundwater is established when a hazardous substance is detected in a hydraulically downgradient sample at a concentration significantly above background levels. As stated in the HRS, to establish an observed release by chemical analysis at a ground water plume site, no separate attribution is required when the source itself consists of a ground water plume with no identified source. A hazardous substance is considered to be present at a concentration significantly above background levels when one of the following two criteria is met: (1) the hazardous substance is detected in the contaminated sample, when not detected in the background samples; or (2) the hazardous substance is detected in the contaminated sample at a concentration equal to or greater than three times the maximum background level, when detected in the background samples.

Selected results from the April 2012 SI groundwater sampling event are presented in Table 3-2. All samples were analyzed for VOCs using CLPAS Method SOM01.2. Water level measurements collected during the sampling event indicate that the direction of groundwater flow within the shallow Gaspur Aquifer at the time of the investigation was toward the south-southeast. Based on this groundwater flow direction, the sample collected from 68 to 73 feet bgs at boring CPT-W1 was designated as the Gaspur Aquifer background sample for this event. This sample did not exhibit TCE, cis-1,2-DCE, or trans-1,2-DCE concentrations above the MRL. The maximum concentration of TCE identified during the investigation was 520 µg/L, which was collected from on-site boring CPT-W4. The respective maximum concentrations of cis-1,2-DCE and trans-1,2-DCE identified during the investigation were 860 µg/L and 23 µg/L, which were collected from on-site monitoring well MW-56. The SI sampling locations are presented in Figure 3-1 and additional information regarding the SI groundwater sampling event is provided in Section 3.2.

Twenty-six distinct water purveyors were identified as operating public drinking water wells within four miles of the Atlantic Avenue Plume site. Six of these 26 purveyors were identified as operating wells within four miles of the site that reported screening interval depths corresponding to the Lakewood Formation aquifers (i.e., Exposition and Gage/Gardena). Based on this information, a total of 17 wells that serve an apportioned population of 104,487 were evaluated as part of this SI. The nearest of these wells, Well 25, is operated by the CoSG Water Division and is located approximately 0.59 mile northeast of the geometric center of the site. During recent water quality sampling, 10 of these 17 wells have been identified with detectable concentrations of TCE that ranged from 0.52 µg/L to 7.0 µg/L. None of the 17 wells exhibited detectable concentrations of cis-1,2-DCE or trans-1,2-DCE (CDPH, 2012a; CDPH, 2012b; CDPH, 2012c; CDPH, 2012d; CDPH, 2012e; EPA, 2011a; App. C-1, C-2, C-3, C-4, C-5, C-6).

4.3 Surface Water Pathway

In determining the score for the surface water pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to surface water (e.g., streams, rivers, lakes, and oceans); 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, persistence, bioaccumlulation potential, and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on drinking water intakes, fisheries, and sensitive environments associated with surface water bodies within 15 miles downstream of the site.

The Atlantic Avenue Plume site was considered for HRS purposes to be a contaminated groundwater plume with no identified source. Based upon this information, hazardous substances associated with the site are not eligible for consideration under the surface water pathway.

4.4 Soil Exposure and Air Pathways

In determining the score for the soil exposure pathway, the HRS evaluates: 1) the likelihood that there is surficial contamination associated with the site (e.g., contaminated soil that is not covered by pavement or at least 2 feet of clean soil); 2) the characteristics of the hazardous substances in the surficial contamination (i.e., toxicity and quantity); and 3) the people or sensitive environments (targets) who actually have been or potentially could be, exposed to the contamination. For the targets component of the evaluation, the HRS focuses on populations that are regularly and currently present on or within 200 feet of surficial contamination. The four populations that receive the most weight are residents, students, daycare attendees, and terrestrial sensitive environments.

In determining the score for the air migration pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to ambient outdoor air; 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on regularly occupied residences, schools, and workplaces within 4 miles of the site. Transient populations, such as customers and travelers passing through the area, are not counted.

The Atlantic Avenue Plume site was considered for HRS purposes to be a contaminated groundwater plume with no identified source. Based upon this information, hazardous substances associated with the site are not eligible for consideration under the soil exposure and air pathways.

5.0 EMERGENCY RESPONSE CONSIDERATIONS

The National Contingency Plan [40CFR 300.415 (b) (2)] authorizes the EPA to consider emergency response actions at those sites that pose an imminent threat to human health or the environment. For the following reasons, a referral to Region 9's Emergency Response Office does not appear to be necessary:

- For HRS purposes, the Atlantic Avenue Plume site was considered to be a contaminated groundwater plume with no identified source. Based upon this information, it is unlikely for individuals to be in direct contact with site contaminants except through pumpage of groundwater (WESTON, 2011).

- Hazardous substances attributable to the site have not been identified in any public drinking water supply wells.

6.0 SUMMARY

The Atlantic Avenue South Gate Plume (Atlantic Avenue Plume) site is located in South Gate, Los Angeles County, California. For the purposes of this SI, the site boundaries as defined in the 2011 PA Report were maintained. These boundaries were inferred based upon historic analytical data and groundwater gradient calculations collected during multiple groundwater sampling events conducted in relation to the Cooper Drum Company (Cooper Drum) Superfund site (EPA ID No.: CAD055753370), and the Los Angeles Unified School District (LAUSD) South Region High School (SRHS) #9 site.

The Atlantic Avenue Plume site is located within the southeastern portion of the city of South Gate and is generally oriented in a north-south direction approximately 250 feet east of Atlantic Avenue. The site encompasses approximately 3.4 acres and extends from Duncan Way in the north for approximately 800 feet to the south. The site is primarily occupied by single-family residential buildings with commercial and light industrial buildings located along the western and southern portions of the site.

Between 2008 and 2009, as part of the Cooper Drum volatile organic compound (VOC) plume investigation, EPA collected samples from the shallow Gaspur Aquifer in the vicinity of Duncan Way and Atlantic Avenue. These samples exhibited elevated and anomalous concentrations of trichloroethylene (TCE) and its degradation products. EPA concluded that based on upgradient and cross-gradient analytical data, this contamination was likely related to an unidentified VOC source. Groundwater sampling at the northwestern portion of the SRHS #9 property has also identified elevated concentrations of TCE and its degradation products, which LAUSD concluded were most likely due to an off-site and upgradient (northerly) source.

A Preliminary Assessment (PA) Report for the Atlantic Avenue Plume site was completed by EPA in March 2011 to assess the previously unidentified VOC groundwater plume. Based on this PA, EPA determined that the site warranted further assessment under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

The site was not listed in the Resource Conservation and Recovery Act (RCRA) Information database as of July 2012. In addition, no RCRA sites were identified as being located within the site boundaries. With the exception of the downgradient monitoring of the Cooper Drum VOC plume, which is currently being overseen by EPA, and the ongoing monitoring and remediation of the SRHS #9 property, which is currently being overseen by the California Department of Toxic Substances Control, no known regulatory actions have occurred within the boundaries of the site.

Between April 2 and April 9, 2012, Weston Solutions Inc. (WESTON), on behalf of the United States Environmental Protection Agency (EPA), conducted a groundwater and limited soil vapor investigation at the site. During this investigation, nine Cone Penetration Test (CPT) borings were advanced in the vicinity of the site and groundwater samples were collected from each boring at depths corresponding to the perched and shallow Gaspur aquifers. In addition, shallow soil vapor samples were collected from each of the CPT borings and groundwater samples were collected from four existing shallow Gaspur monitoring wells. All samples were analyzed for VOCs and groundwater samples were additionally analyzed for 1,4-dioxane. Additional details on this sampling event are provided in Section 3.2 of this SI.

The SI sampling results indicate that the perched and shallow Gaspur aquifers are impacted by TCE, cis-1,2-DCE, and trans-1,2-DCE in the vicinity of Duncan Way and the unnamed alley located approximately 170 feet east of Atlantic Avenue. The maximum concentrations of these contaminants identified during the investigation are 520 µg/L (TCE), 860 µg/L (cis-1,2-DCE), and 23 µg/L (trans-1,2-DCE). The source of the VOC contamination has not been determined; however, the analytical data suggests that the source is originating in the vicinity of boring CPT-W4 and is unlikely to be related to the previously identified VOC sources associated with the adjacent Superfund sites (i.e., Cooper Drum Company, Jervis B. Webb, Southern Avenue Industrial Area) or the LAUSD SRHS #9 property.

The following pertinent Hazard Ranking System (HRS) factors are associated with the Atlantic Avenue Plume site:

- The site is a contaminated VOC groundwater plume with no identified source. The plume is defined by relatively high concentrations of TCE and its degradation products within the shallow Gaspur aquifer.

- Based on the results of the April 2012 SI groundwater sampling event, a release of TCE, cis-1,2-DCE, and trans-1,2-DCE to the shallow Gaspur Aquifer has been established by chemical analysis.

- Aquifer interconnection within 2 miles of the site has been established between the Gaspur through Gage/Gardena and between the Jefferson through Silverado. Interconnection between the Gage/Gardena and Jefferson has not been established within 2 miles of the site.

- The nearest public drinking water well to the site that was identified with a screening interval depth corresponding to a Lakewood Formation aquifer is the City of South Gate's Well 25, which is located approximately 0.59 mile northeast of the site.

- There are 17 public drinking water wells within 4 miles of the site that were identified as having screening interval depths corresponding to the Lakewood Formation aquifers. These wells serve an apportioned population of approximately 104,487.

- The site was considered for HRS purposes to be a contaminated groundwater plume with no identified source. Based upon this information, hazardous substances associated with the site are not eligible for consideration under the surface water, air, or soil pathways.

7.0 REFERENCE LIST

AMEC, 2011 — AMEC; *First Semi-Annual 2011 Groundwater Monitoring Report, Operable Unit 1, Cooper Drum Superfund Site*; August 31, 2011.

CDPH, 2012a — California Department of Public Health; *District 07 Hollywood, Drinking Water Monitoring Schedule*; June 20, 2012.

CDPH, 2012b — California Department of Public Health; *District 15 Metropolitan, Drinking Water Monitoring Schedule*; June 20, 2012.

CDPH, 2012c — California Department of Public Health; *District 16 Central L.A., Drinking Water Monitoring Schedule*; June 20, 2012.

CDPH, 2012d — California Department of Public Health; *District 22 Angeles, Drinking Water Monitoring Schedule*; June 20, 2012.

CDPH, 2012e — California Department of Public Health; Drinking Water Watch, Public Water Supply Systems query results; *City of South Gate, GSWC - Bell/Bell Gardens, City of Lynwood, Maywood Mutual Water Co. #3, Walnut Park Mutual Water Co., City of Compton,* *http://drinc.ca.gov:8080/DWW/index.*jsp; data extracted July 26, 2012.

DTSC, 1999 — Department of Toxic Substances Control; *Docket No. HAS 98/99-020, Voluntary Cleanup Agreement, South Gate New High School No. 1, South Gate New Elementary School No. 3*; June 29, 1999.

DTSC, 2012 — Department of Toxic Substances Control; Envirostor Database, Map query results; *Atlantic Avenue and Duncan Way, City of South Gate*; http://www.envirostor.dtsc.ca.gov/public; data extracted July 3, 2012.

DWR, 1961 — Department of Water Resources, State of California; *Bulletin No. 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology*; June 1961.

DWR, 2004 — Department of Water Resources, State of California; *California's Groundwater Bulletin 118, Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin*; February 27, 2004.

EPA, 2002 — U.S. Environmental Protection Agency; *EPA Superfund Record of Decision: Cooper Drum Co., EPA ID: CAD055753370, OU1*; September 27, 2002.

EPA, 2011a U.S. Environmental Protection Agency; GIS Report, *Atlantic Avenue SouthGate Plume CAN000908953*; February 4, 2011.
Note: This document is confidential and is included in the confidential information packet.

EPA, 2011b U.S. Environmental Protection Agency; *Remedial Site Assessment Decision - EPA Region IX, Atlantic Avenue SouthGate Plume*; October 20, 2011.

EPA, 2012a U.S. Environmental Protection Agency; Enviromapper query results; Atlantic Avenue and Duncan Way, City of South Gate, RCRAInfo; http://www.epa.gov/emefdata/em4ef.home; data extracted July 3, 2012.

EPA, 2012b U.S. Environmental Protection Agency; Enviromapper query results; Atlantic Avenue and Tweedy Blvd, City of South Gate, Superfund Sites (CERCLIS); http://www.epa.gov/emefdata/em4ef.home; data extracted July 3, 2012.

EPA, 2012c U.S. Environmental Protection Agency; Pacific Southwest, Region 9: Superfund; *Jervis B. Webb Co*; http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/3dec8ba3252368428825742600743733/54560c054422802088257913008l3349!OpenDocument; data extracted July 3, 2012.

EPA, 2012d U.S. Environmental Protection Agency; Pacific Southwest, Region 9: Superfund; *Seam Master Industries*; http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/7508188dd3c99a2a8825742600743735/d9acef4a71cbca01882579130078b555!OpenDocument; data extracted July 3, 2012.

EPA, 2012e U.S. Environmental Protection Agency; Envirofacts Warehouse CERCLIS query results; *Atlantic Avenue SouthGate Plume*; http://iaspub.epa.gov/enviro/cerclisquery.get_report?pgm_sys_id=CAN000908953; data extracted August 1, 2012.

EPA, 2012f U.S. Environmental Protection Agency; Region 9 Superfund; Site Overview by Site Name; *Cooper Drum Co.*; http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/vwsoalphabetic/Cooper+Drum+Co.?OpenDocument; data extracted August 1, 2012.

Google, 2012 Google Earth; *33˚ 56' 35.04" N, 118˚ 10' 47.84 " W, 08 March 2011*; http://earth.google.com; data extracted August 1, 2012.

ITSI, 2010 — Innovative Technical Solutions, Inc.; *Cooper Drum Company Superfund Site, Remedial Design, Technical Memorandum for Field Sampling Results*, *Addendum No. 4*; February 2010.

Parsons, 2008 — Parsons; *Final Phase 3, Groundwater Operable Unit 3, Monitoring Report*, *Proposed South Region High School #9 and Middle School #4 site*; January 2008.

Parsons, 2012a — Parsons Commercial Technology Group; *Final Phase 4, Groundwater Monitoring Report*, *Proposed South Region High School #9*, *South Gate*, *California*; January 2012.

Parsons, 2012b — Parsons Commercial Technology Group; *Technical Memorandum, Operable Unit 3 Groundwater Sampling Results (December 2011), Proposed South Region High School #9*; April 19, 2012.

RWQCB, 2012 — Regional Water Quality Control Board; Geotracker Database, Map query results; *Atlantic Avenue and Duncan Way, City of South Gate*; http://geotracker.waterboards.ca.gov/map; data extracted July 3, 2012.

URS, 2007 — URS Corporation; *Cooper Drum RD, Remedial Design Technical Memorandum for Field Sampling Results, Addendum No. 2 CPT/HydroPunch Sampling Results February/March 2007*; June 25, 2007.

WESTON, 2011 — Weston Solutions, Inc.; *Preliminary Assessment Report*, *Atlantic Avenue SouthGate Plume*; March 2011.

WRD, 2011 — Water Replenishment District of Southern California; *Engineering Survey and Report*; March 4, 2011.

APPENDIX A:
Transmittal List

TRANSMITTAL LIST

Date: **August 2012**
Site Name: **Atlantic Avenue South Gate Plume**
EPA ID No.: **CAN000908953**

****

A copy of the Site Inspection (SI) report for the above-referenced site should be sent to the following recipients:

Rita Kamat
California Environmental Protection Agency
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, CA 91311-6505

Eric Yunker
USEPA - Superfund Division
75 Hawthorne Street, SFD-7-3
San Francisco, CA 94105

U.S. Environmental Protection Agency, Superfund Records Center
c/o Matt Mitguard
USEPA - Superfund Division
75 Hawthorne Street, SFD-6-1
San Francisco, CA 94105

APPENDIX B:
Site Reconnaissance Interview and Observation Report/Photographic Documentation

SITE RECONNAISSANCE INTERVIEW AND OBSERVATIONS REPORT

DATE: 02 April 2012 - 09 April 2012

OBSERVATIONS MADE BY: Brian P. Reilly, Weston Solutions, Inc. (WESTON)

SITE: Atlantic Avenue South Gate Plume

EPA ID: CAN000908953

The following information was obtained during the site reconnaissance:

Four businesses were identified along the east side of the 9600 block of Atlantic Avenue. These businesses included from north to south:

- Easy Auto Sales - 9620 Atlantic Avenue (inactive)
- Automotive Balancing Service - 9624 Atlantic Avenue (inactive)
- Pro-Speed Sport Tuning - 9636 Atlantic Avenue (active)
- Larry's Maytag - 9640 Atlantic Avenue (active)

(Note: No Photographic Documentation was required for the completion of this report)

APPENDIX C:
Contact Log and Contact Reports

CONTACT LOG

SITE: Atlantic Avenue South Gate Plume
EPA ID: CAN000908953

NAME	AFFILIATION	PHONE	DATE	INFORMATION
Ana Chavez	Golden State Water Company - Bell/Bell Gardens	(714) 535-7711 ext. 219	3/10/2011	See Contact Report 2
Martin Gonzales	Walnut Park Mutual Water Company	(323) 585-7321	10/29/10; 6/30/2011	See Contact Report 5
Ron Hernandez	City of South Gate, Public Works	(323) 563-5796	01/04/2011; 06/22/2011	See Contact Report 1
Jose Molina	City of Lynwood, Public Works	(310) 603-0220 ext. 800	5/25/2011	See Contact Report 3
Tony Owens	City of Compton, Municipal Water Department	(310) 605-5524	3/25/2011	See Contact Report 6
Bob Rohlf	Maywood Mutual Water Company #3	(323) 560-3657	12/2/2010; 8/24/2011	See Contact Report 4
Jason Wen	City of Downy, Public Works	(562) 904-7201	02/22/2011	See Contact Report 4

CONTACT REPORT 1

CONTACT REPORT

AGENCY/AFFILIATION: City of South Gate			
DEPARTMENT: Public Works			
ADDRESS/CITY: 4244 Santa Ana Street, South Gate			
COUNTY/STATE/ZIP: Los Angeles, California, 90280			
CONTACT(S)	TITLE	PHONE	
Ron Hernandez Ron Hernandez	Water Operations Foreman 8-22-11	(323) 563-5796	
PERSON MAKING CONTACT: Anitra B. Rice, Project Scientist, Weston Solutions, Inc.		DATE: 01/4/11	
PERSON MAKING CONTACT: Amanda K.C. Reilly, Project Scientist, Weston Solutions, Inc.		DATE: 06/22/11	
SUBJECT: Drinking water well information			
SITE NAME: Seam Master Industries			EPA ID#: CAN000905902
SITE NAME: Jervis B. Webb Co.			EPA ID#: CAD008339467

The City of South Gate water distribution system serves approximately 96,375 customers. The blended system consists of seven active drinking water wells (Wells 14, 19, 24, 25, 26, 27 and 28), four stand-by wells (Wells 14, 19, 22B, and 23), and most recently one destroyed (Well 7). The seven active groundwater wells provide 100 percent of the drinking water. No single well provides more than 40 percent of the total demand at any given time. Wells 14 and 19 provide 30 percent of the demand, Wells 24 and 25 provide 20 percent of the demand, Well 26 provides 20 percent of the demand, Well 27 provides 10 percent of the demand, and Well 28 provides 20 percent of the demand. The City of South Gate does not sell or purchase water to other water systems and/or water users.

In 2002 water quality sampling, tetrachloroethylene (PCE), trichloroethylene (TCE), and hexavalent chromium has been detected. PCE has been detected in Wells 13, 14, 18, and 19. The PCE at these four wells are currently being treated at the wellhead. In standby Well 7, TCE has been found up to 10.5 parts per million (ppm) and hexavalent chromium up to 0.086 ppm. In standby Well 22B, PCE has been found up to 0.0108 ppm. Well 27 has elevated levels of iron and manganese. These wells are currently offline.

CONTACT REPORT 1
(continued)

City of South Gate				
Well Name	**Well Address** CONFIDENTIAL	**Well Depth (feet bgs)**	**First Perforation (feet bgs)**	**Gallons Per Minute (GPM)**
Well 7	[redacted]	883	500	-
Well 13		810	600	1800
Well 14		813	615	3000
Well 18		790	620	1500
Well 19		794	610	2500
Well 22B		578	495	622
Well 23		856	530	-
Well 24		1,266	310	1500
Well 25		1,325	303	500
Well 26		1,206	628	2710
Well 27		1,200	500	1500
Well 28		1,160	610	2500

CONTACT REPORT 2

AGENCY/AFFILIATION: Golden State Water Company		
DEPARTMENT: Central District		
ADDRESS/CITY: 12035 Burke Street, Suite 1, Santa Fe Springs		
COUNTY/STATE/ZIP: Los Angeles, California, 91773		
CONTACT(S)	TITLE	PHONE
Ana Chavez	Sr. Water Resources Analyst	(714) 535-7711 ext. 219
PERSON MAKING CONTACT: Anitra B. Rice		DATE: 03/10/2011
SUBJECT: Drinking water well information		
SITE NAME: Atlantic Avenue South Gate Plume		EPA ID#: CAN000908953

Bell/Bell Gardens System

As of December 2009, the Bell/Bell Gardens System operates 7,521 service connections (multiply by 3.3 persons per service connection equals a population of 24,829 served). The system consists of four active wells (Clara #2, Gage #2, Otis #3, and Watson #1), one active/offline well (Bissell 2), two standby/inactive wells (Gage 1 and Priory 2) and one new well not yet activated (Bissell 3) that supplies 99 percent of the water in the system. Bissell #2 has been offline since July 2010 due to sand issues. Gage 1 and Priory 2 are both standby/inactive, since July 2003 and March 2008, respectively, also due to sand issues. The remaining one percent of the water within the system is provided by Central Basin Municipal Water District (CBMWD) who obtains its imported water from MWD. No individual well supplies more than 40 percent of the total supply. Watson #1 is being treated for TCE and PCE.

GSWC – Bell/Bell Gardens System				
Well Name	**Well Address (CONFIDENTIAL)**	**Screen Depths (feet bgs)**	**Percent contribute to drinking water**	**Gallons Per Minute (GPM)**
Bissell #2		575-1275	0%	0
Bissell #3		595-615, 680-690, 705-730, 805-820, 900-925, 955-970, 1005-1025	0%	0
Otis #3		520-530, 570-590	100%	860
Watson #1		243-249, 330-348, 420-427, 442-456	100%	985
Gage #1		282-301, 312-320, 428-434, 488-514	0%	0
Gage #2		290-320, 434-436, 499-502, 555-564, 569-573	100%	960
Priory #2		368-376, 380-400, 422-426, 561-581, 593-613	0%	0
Clara #2		330-350, 360-390, 420-470, 520-560, 610-640, 770-830, 960-970	100%	1029

CONTACT REPORT 3

AGENCY/AFFILIATION: City of Lynwood		
DEPARTMENT: Public Works		
ADDRESS/CITY: 11330 Bullis Road, Lynwood		
COUNTY/STATE/ZIP: Los Angeles, California, 90262		
CONTACT(S)	TITLE	PHONE
Jose Molina	Utility Services Manager	(310) 603-0220, ext. 800
PERSON MAKING CONTACT: Karen Jurist, Site Assessment Manager, U.S. EPA Region IX		DATE: 05/25/11
SUBJECT: Drinking water well information		
SITE NAME: Atlantic Avenue South Gate Plume		EPA ID#: CAN000908953

The City of Lynwood water distribution system serves approximately 65,965 people. The non-blended system consists of five active drinking water wells (Wells 5, 8, 9, 11 and 19). Currently, all of the water obtains all of its water from ground water. Approximately one to two percent of the water distributed is imported surface water purchased from the Municipal Water District (MWD) on an as needed basis. No one well supplies more than 40 percent to the entire system. PCE has been detected in each active drinking water well at concentrations below the MCL.

City of Lynwood				
Well Name	**Well Address (CONFIDENTIAL)**	**Well Screen Depths (feet bgs)**	**Percent Contributing to System**	**Gallons Per Minute (GPM)**
Well 5		649 – 662; 669 – 709	9.73	550
Well 8		161 – 175; 207 – 216; 241 – 247; 266 – 267; 271 – 277; 284 – 290; 681 – 690; 708 – 719; 738 – 803	19.47	1,100
Well 9		323 – 345; 352 – 367; 576 – 582; 676 – 688; 776 – 787	21.24	1,200
Well 11		310 – 324; 670 – 676; 902 – 911	14.16	800
Well 19		250 – 878	35.4	2,000

CONTACT REPORT 4

AGENCY/AFFILIATION: Maywood Mutual Water Company #3		
DEPARTMENT: Water Department		
ADDRESS/CITY: 6151 Heliotrope Avenue, Maywood		
COUNTY/STATE/ZIP: Los Angeles, California, 90270		
CONTACT(S)	TITLE	PHONE
Bob Rohlf	Director of Operations	(323) 560-3657
PERSON MAKING CONTACT: Anitra B. Rice, Project Scientist, Weston Solutions, Inc.		DATE: 12/2/2010
PERSON MAKING CONTACT: Amanda K.C. Reilly, Project Scientist, Weston Solutions, Inc.		DATE: 8/24/2011
SUBJECT: Drinking water well information		
SITE NAME: Seam Master Industries		EPA ID#: CAN000905902
SITE NAME: Jervis B. Webb Co.		EPA ID#: CAD008339467

The Maywood Mutual Water Company #3 operates a drinking water supply system that contains three active drinking water wells (Prospect #1, District #4, and Warehouse #7) that serve a population of approximately 9,500 people. The Maywood Mutual Water Company #3 currently obtains all of its drinking water from groundwater. However, at times water has been purchased from the Metropolitan Water District. The Prospect #1 well contributes 22.7 percent to the system, the District #4 well contributes 34.9 percent to the system, and the Warehouse #7 well contributes 42.4 percent to the system. The Maywood Mutual Water Company #3 does not sell their water to any other water purveyors. All wells are screened in the Exposition aquifier but there are several smaller aquifiers that water is also drawn from. The Director of Operations did not know names of smaller aquifiers. The water distributed by the Maywood Mutual Water Company #3 is within the safe drinking standards.

Maywood Mutual Water Company #3		
Well Name	**Well Address**	**Gallons Per Minute (GPM)**
Prospect Well #1		700
District #4 Well	CONFIDENTIAL	1300
Warehouse #7 Well		1000

Robert C. Rohlf, Director of Operations
Maywood Mutual Water Co. No. 3

CONTACT REPORT 5

AGENCY/AFFILIATION: Walnut Park Mutual Water Company		
DEPARTMENT: Water Department		
ADDRESS/CITY: 2460 East Florence Avenue, Huntington Park		
COUNTY/STATE/ZIP: Los Angeles, California, 90255		
CONTACT(S)	TITLE	PHONE
Martin Gonzalez	Water Superintendent	(323) 585-7321
PERSON MAKING CONTACT: Anitra B. Rice, Project Scientist, Weston Solutions, Inc.		DATE: 10/29/10
PERSON MAKING CONTACT: Amanda K.C. Reilly, Project Scientist, Weston Solutions, Inc.		DATE: 6/30/11
SUBJECT: Drinking water well information		
SITE NAME: Seam Master Industries		EPA ID#: CAN000905902
SITE NAME: Jervis B. Webb Co.		EPA ID#: CAD008339467

The Walnut Park Mutual Water Company operates two active drinking water wells (Well 10 and Well 11) that serve a population of 17,000. An additional well, Well 12, is a stand-by well and is currently non-operational and not contributing any water to the system. All of the water distributed is from ground water. Walnut Park Mutual Water Company stopped purchasing surface water from the Metropolitan Water Company in December 2006. Walnut Park Mutual Water Company does not sell or purchase water from any other water purveyors. Water from the two wells is blended evenly prior to distribution. Contamination has not been detected in either well.

Walnut Park Mutual Water Company			
Well Name	Well Address	Screen Depths (feet bgs)	Well Capacity (GPM)
Well 10	CONFIDENTIAL	205	1,500
Well 11		203	1,250

CONTACT REPORT 6

AGENCY/AFFILIATION: City of Compton		
DEPARTMENT: Municipal Water Department		
ADDRESS/CITY: 205 S. Willowbrook Avenue; Compton		
COUNTY/STATE/ZIP: Los Angeles; California; 90220		
CONTACT(S)	TITLE	PHONE
Tony Owens	Pump Operator	(310) 605-5524
PERSON MAKING CONTACT: Amanda K.C. Reilly		DATE: 25 March 2011
SUBJECT: Public Water Distribution System Information		
SITE NAME: Atlantic Avenue South Gate Plume		EPA ID#: CAN000908953

Mr. Owens indicated that the City of Compton operates a gravity flow system that includes seven active wells (Wells No.'s 11, 13, 15, 16, 17, 18, 19). These wells provided approximately 50 percent of the water supply for the system. The remaining 50 percent is supplied via three connections with the MWD (hookups C-1, C-3, C-4). The department maintains approximately 14,500 service connections.

WELL ID	SCREEN DEPTH	AQUIFER PULLING FROM	PERCENT	GPM
11	350-490	LYNWOOD	10.4	948
13	515-680	LYNWOOD	10.02	982
15	451-501	LYNWOOD	5.37	833
16	277-400	GARDENA,HOLLYDALE	8.56	1081
17	240-490	GARDENA,HOLLYDALE,LYNWOOD	10.18	801
18	260-850	GARDENA,HOLLYDALE,LYNWOOD	30.36	2000
19	275-325	GARDENA,HOLLYDALE	25.08	2080

APPENDIX D:
Latitude and Longitude Calculations Worksheet

Latitude and Longitude Calculation Worksheet (7.5' quads)
Using an Engineer's Scale (1/50)

Site Name Atlantic Avenue South Gate Plume **CERCLIS #** C A N 0 0 0 9 0 8 9 5 3

AKA

Address Unaddressed; approx. 3.4 acres

City South Gate **State** C A **ZIP**

Site Reference Point Aerial – geometric center of site

USGS Quad Name **Scale**

Township **Range** **Section** 3 3 3

Map Datum 1927 1983 (Check one) **Meridian**

Map coordinates at southeast corner of 7.5' quadrangle (attach photocopy)

Latitude E > AN **Longitude** E > AW

Map coordinates at southeast corner of 2.5' grid cell

Latitude E > AN **Longitude** E > AW

Calculations

LATITUDE(x)

A) Number of ruler graduations between 2.5' (150") grid lines **(a)**

B) Number of ruler graduations between south grid line and the site reference point **(b)**

C) Therefore, a/150 = b/x, where **x= Latitude in decimal seconds, north of the south grid line**

Expressed as minutes and seconds (1' = 60") = E > AN

Add to grid cell latitude = E > AN + E > AN

Site latitude = 3 3 ° 5 6 ' 3 5 " N

LONGITUDE(y)

A) Number of ruler graduations between 2.5' (150") grid lines **(a)**

B) Number of ruler graduations between south grid line and the site reference point **(b)**

C) Therefore, a/150 = b/x, where **x= Longitude in decimal seconds, west of the east grid line**

Expressed as minutes and seconds (1" = 60") = E > AW

Add to grid cell longitude = E > AN + E > AN

Site longitude = 1 1 8 ° 1 0 ' 4 7 " W

APPENDIX E:
Sampling and Analysis Plan

Site Inspection
Sampling and Analysis Plan

Atlantic Avenue South Gate Plume
South Gate, Los Angeles County, California

Final Version

EPA ID No.: CAN000908953
USACE Contract No.: W91238-11-D-0001
Interagency Agreement No.: 95777001-0
Document Control No.: 20074.063.029.1009

March 2012

Prepared for:
U.S. Environmental Protection Agency
Region 9

Prepared by:
Weston Solutions, Inc.
428 13th Street
6th Floor, Unit B
Oakland, California 94612

Atlantic Avenue South Gate Plume
South Gate, Los Angeles County, California

Final Sampling and Analysis Plan

EPA ID: CAN000908953

USACE Contract No.: W91238-11-D-0001
Interagency Agreement No.: 95777001-0
Document Control No.: 20074.063.029.1009

QA Document Control Number:

Approved by: ____________________________________
Christina Marquis, Program Manager
WESTON Solutions, Inc.

Approved by: ____________________________________
Brian P. Reilly, Project Manager
WESTON Solutions, Inc.

Approved by: ____________________________________
Matt Mitguard, EPA Site Assessment Manager
U.S. Environmental Protection Agency, Region 9

Approved by: ____________________________________
Eugenia McNaughton, Quality Assurance Manager
U.S. Environmental Protection Agency, Region 9

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LIST OF FIGURES

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LIST OF ACRONYMS

AOC	Analyte of Concern
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cis-1,2,-DCE	cis-1,2-dichloroethylene
CLP	Contract Laboratory Program
CLPAS	Contract Laboratory Program Analytical Services
CoC	Contaminant of Concern
CPT	Cone Penetration Testing
CRDL	Contract Required Detection Limits
CRQL	CLP Contract Required Quantitation Limits
DCA	dichloroethane
DQO	Data Quality Objective
DPA	Drum Processing Area
DQI	Data Quality Indicator
DoHS	California Department of Health Services
DTSC	Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
FM	Field Manager
HRS	Hazard Ranking System
HWA	Hard Wash Area
I&SED	Imminent and Substantial Endangerment Determination
IDW	Investigation-Derived Wastes
LADHS	Los Angeles Department of Health Services
LAUSD	Los Angeles Unified School District
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NFA	No Further Action
NOV	Notice of Violation
NPL	National Priority List
OU	Operable Unit
PA	Preliminary Assessment
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
PDB	Passive Diffusion Bag
PM	Program Manager
PPE	Personal Protective Equipment
PRP	Potentially Responsible Party
QA	Quality Assurance

QAO	Quality Assurance Office
QC	Quality Control
RAO	Remedial Action Order
RCRAInfo	Resource Conservation and Recovery Information System
RI	Remedial Investigation
ROD	Record of Decision
RPD	Relative Percent Difference
RSCC	Regional Sample Control Coordinator
RSL	Regional Screening Level
RWQCB	Regional Water Quality Control Board
SAM	Site Assessment Manager
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act of 1986
SI	Site Inspection
SOP	Standard Operating Procedure
SRHS	South Region High School
SVE	Soil Vapor Extraction
TCA	trichloroethane
TCE	trichloroethylene
TCP	trichloropropane
VC	vinyl chloride
VOC	volatile organic compound
WESTON	Weston Solutions, Inc.
µg/L	micrograms per liter

1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), Weston Solutions, Inc. (WESTON®) has been tasked to conduct a Hazard Ranking System (HRS) Site Inspection (SI) of the Atlantic Avenue South Gate Plume (Atlantic Avenue Plume) located in South Gate, Los Angeles County, California. The HRS assesses the relative threat associated with actual or potential releases of hazardous substances to the environment, and has been adopted by the United States Environmental Protection Agency (EPA) to assist in setting priorities for further site evaluation and potential remedial action. The HRS is the primary method for determining a site's eligibility for placement on the National Priorities List (NPL). The NPL identifies sites where the EPA may conduct remedial actions.

This Sampling and Analysis Plan (SAP) describes the project and data use objectives, data collection rationale, quality assurance goals, and requirements for sampling and analysis activities. The SAP also defines the sampling and data collection methods that will be used for this project. The SAP is intended to accurately reflect the planned data-gathering activities for this site investigation; however, site conditions and additional EPA direction may warrant modifications. All significant changes will be documented in the final report.

WESTON has been tasked to gather and review existing available information regarding site conditions, identify and fill data gaps, and prepare HRS scoresheets and rationale for the site.

The specific field sampling and chemical analysis information pertaining to the site is addressed in this SAP, in accordance with the EPA documents *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations* (QA/R-5), March 2001, *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA QA/G-4), February 2006, and *Data Quality Objective Process for Superfund* (EPA 540/G-93/71), August 1993.

1.1 Project Organization

The following is a list of project personnel and their responsibilities:

EPA Site Assessment Manager (SAM) - The EPA SAM is Matt Mitguard. Mr. Mitguard is the primary decision maker for this investigation and is the primary contact for the WESTON Project Manager.

WESTON Program Manager (PM) and Quality Assurance (QA) Coordinator - The WESTON PM and QA Coordinator is Christina Marquis. Ms. Marquis is responsible for the overall performance of all tasks assigned to WESTON by the EPA. Ms. Marquis is authorized to approve Sampling Analysis Plans for sites conducted by WESTON to ensure project quality assurance goals are met.

WESTON Field Manager (FM) - The WESTON FM is Brian Reilly. Mr. Reilly is responsible for preparing the SAP; working with the laboratories; implementing the sampling design; collecting, handling, documenting, and transporting samples; generating field documentation of sampling activities; and working with the WESTON QA Coordinator to ensure project quality assurance goals are met.

Analytical Laboratory - The EPA Regional Sample Control Coordinator (RSCC) will arrange for laboratory services and data validation activities for volatile organic compounds (VOCs) by SOM01.1 or equivalent and for 1,4-dioxane by OLM03.1 or equivalent.

Data Validation – The EPA RSCC will arrange data validation for this investigation.

Table 1-1: Organizational Chart

Title/Responsibility	Name	Phone Number
EPA Site Assessment Manager	Matt Mitguard	(415) 972-3096
EPA Quality Assurance Manager	Eugenia E. McNaughton, Ph.D.	(415) 972-3411
WESTON Program Manager and Quality Assurance Coordinator	Christina Marquis	(818) 350-7308
WESTON Field Manager	Brian Reilly	(541) 593-3800
EPA Region 9 Sample Control Coordinator	Garret Peterson	(510) 412-2389

1.2 Distribution List

Copies of the final SAP will be distributed to the following persons and organizations:

- Matt Mitguard, EPA Region 9
- Eugenia McNaughton, EPA QA Manager
- WESTON files

1.3 Statement of the Specific Problem

In 2008 and 2009, during EPA sampling associated with the Cooper Drum Company (Cooper Drum) Superfund site (EPA ID No.: CAD055753370), previously unidentified VOC groundwater contamination was discovered in the shallow Gaspur Aquifer. The previously unidentified contamination exhibited concentrations of trichloroethylene (TCE) up to 3,900 micrograms per liter (µg/L) and cis-1,2-dichloroethylene (cis-1,2-DCE) up to 290 µg/L. Upgradient and cross-gradient samples exhibited maximum TCE and cis-1,2-DCE concentrations of 8.2 µg/L and 6.5 µg/L, respectively. The Maximum Contaminant Levels (MCL) for TCE and cis-1,2-DCE are 5 µg/L and 70 µg/L, respectively (ITSI, 2010).

In 2007, a groundwater sample collected by the Los Angeles Unified School District (LAUSD) at the northwestern portion of the proposed South Region High School #9 (SRHS) property, exhibited a TCE concentration of 850 µg/L. There is the potential that the TCE contamination identified in this sample is related to the previously unidentified VOC contamination discovered by EPA in 2008/2009 (ITSI, 2010; Parsons, 2008).

A Preliminary Assessment (PA) Report was completed by EPA in March 2011 to assess the previously unidentified VOC groundwater plume identified in the Cooper Drum and LAUSD monitoring wells. Based on this PA, EPA determined that additional sampling would be necessary to better define the extent of the groundwater contamination and to identify a probable source area (Weston, 2011).

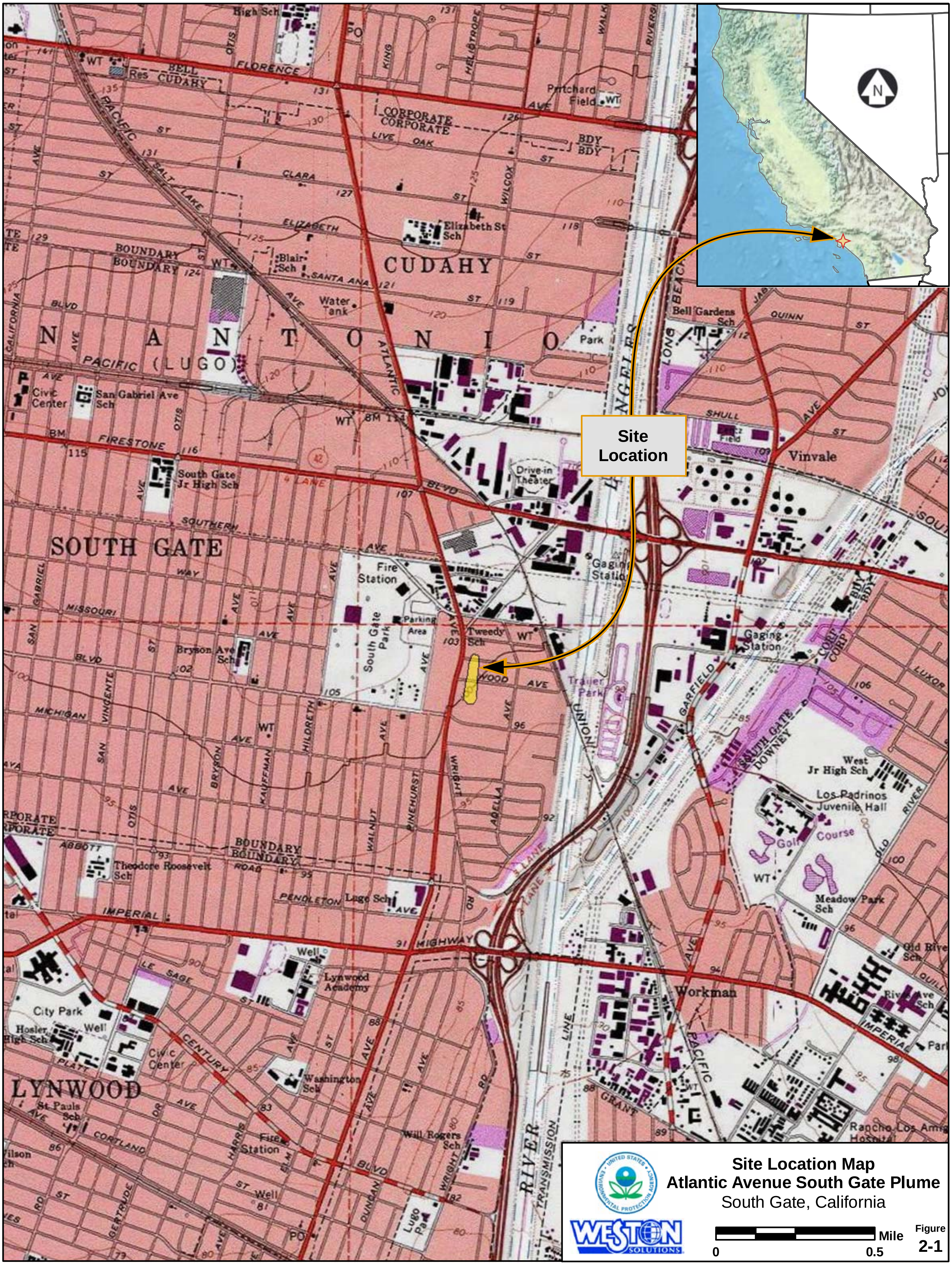
2.0 BACKGROUND

2.1 Location and Description

The Atlantic Avenue Plume is located in South Gate, Los Angeles County, California. For the purposes of this SAP, the site is defined by the lateral extent of a contaminated groundwater plume located within the southeastern portion of the city of South Gate. The northern site boundary is located approximately 50 feet north of Duncan Way and the southern site boundary is located approximately 300 feet north of Tweedy Boulevard. The western and eastern site boundaries are located approximately 150 feet and 350 feet east of Atlantic Avenue, respectively. The geographic coordinates for the geometric center of the site are 33˚ 56’ 35.2" North latitude and 118˚ 10’ 48.6" West longitude. The site location is shown in Figure 2-1 (Google, 2011).

The Atlantic Avenue Plume is located in a mixed commercial, industrial, and residential area of South Gate, California. The site encompasses approximately 3.4 acres and is primarily occupied by single-family residential buildings with commercial and light industrial buildings located along the western and southern portions of the site. The commercial/industrial buildings within the site boundaries are located on the 9700 and 9800 blocks of Atlantic Avenue. The southeastern corner of the site is occupied by a property proposed to be developed into a school by the LAUSD. The site boundaries are inferred based upon the analytical data from groundwater sampling conducted in the vicinity of the site and the groundwater flow direction. Insufficient data is currently available to document the precise plume boundaries or to project the future migration of groundwater contaminants. The site layout is shown in Figure 2-2 (Google, 2011).

The lateral extent of the Atlantic Avenue Plume is defined by two groundwater monitoring wells that exhibited concentrations of TCE significantly above the site-defined background concentration. Between 2007 and 2009, samples collected from these wells, which are identified as Well MW-56 and Well 039-MW1C, exhibited TCE concentrations of 3,900 µg/L and 850 µg/L, respectively. Both of these wells are screened within the shallow Gaspur Aquifer; Well MW-56 is screened from 62-72 feet below ground surface (bgs) and Well 039-MW1C is screened from 68.2-78.2 feet bgs. Prior to the installation of Well MW-56 in 2009, a cone penetration test (CPT) boring, CPT-47, was advanced at the well’s location. A grab groundwater sample collected from 70 feet bgs exhibited a TCE concentration of 690 µg/L. A summary of these wells and the samples used to define the background TCE concentration are presented in Table 2-1. The groundwater well and sample locations used to define the site boundaries are shown in Figure 2-3 (ITSI, 2010; Parsons, 2008).

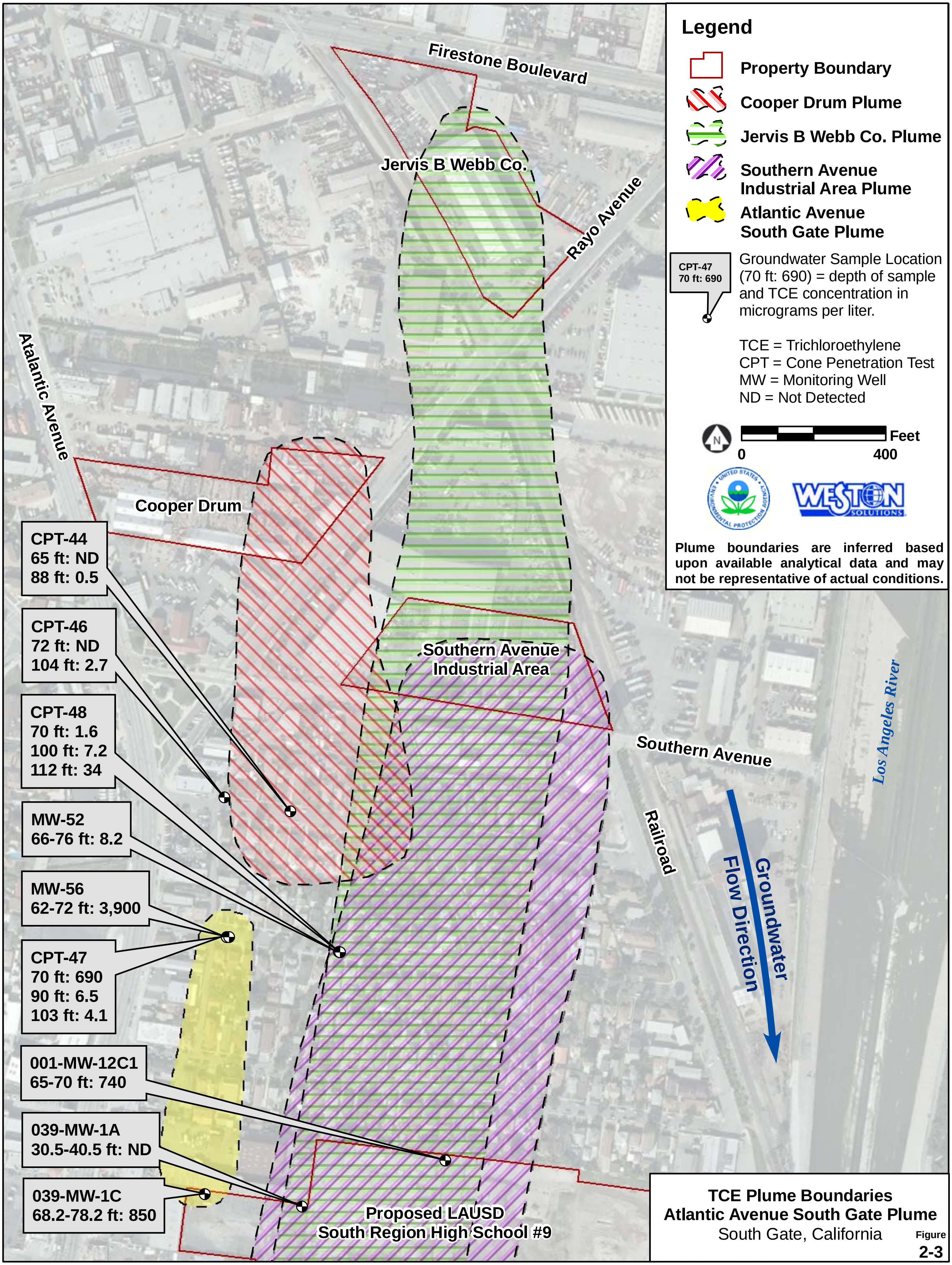


Site Location Map
Atlantic Avenue South Gate Plume
South Gate, California

Figure 2-1

Site Layout Map
Atlantic Avenue South Gate Plume
South Gate, California

Figure 2-2



TCE Plume Boundaries
Atlantic Avenue South Gate Plume
South Gate, California

Figure
2-3

Table 2-1: Summary of Wells and Samples Used to Define Atlantic Avenue South Gate Plume Site Boundaries

Well or Boring Identification	Location Type	Sample Date	Maximum TCE (µg/L)	Maximum cis-1,2-DCE (µg/L)	Sample Depth (feet)	Screening Interval (feet bgs)
MW-56	Monitoring Well	May 2009	**3,900 (D)**	**290 (D)**	--	62-72
CPT-47[1]	CPT Boring	Dec 2008	**690 (D)**	**130 (D)**	70	--
039-MW1C	Monitoring Well	April 2007	**850**	41	--	68.2-78.2
Background Locations						
CPT-44	CPT Boring	Feb/Mar 2007	ND	ND	65	--
CPT-46	CPT Boring	Dec 2008	ND	ND	72	--
MW-52	Monitoring Well	May 2009	**8.2**	6.5	--	66-76
CPT-48[2]	CPT Boring	Dec 2008	**1.6**	1.6	70	--
TCE MCL = 5.00 µg/L TCE CRSC = 0.21 µg/L			cis-1,2-DCE MCL = 70 µg/L cis-1,2-DCE CRSC = Not Established			
Background TCE concentration = 8.2 µg/L (x 3 = 24.6 µg/L)			Background cis-1,2-DCE concentration = 6.5 µg/L (x 3 = 19.5 µg/L)			
1 = Colocated with MW-56 2 = Colocated with MW-52 bgs = Below ground surface cis-1,2-DCE = cis-1,2-dichloroethylene CPT = Cone Penetration Test CRSC = Cancer Risk Screening Concentration			D = laboratory flag: detection associated with sample dilution MCL = Maximum Contaminant Level TCE = Trichloroethylene µg/L = Micrograms per liter -- = Not known or not applicable			
References: ITSI, 2010; Parsons, 2008						

The Atlantic Avenue Plume is located within an area of the city of South Gate that includes, and has historically included, numerous large industrial properties. A description of the most relevant properties in the vicinity of the site is provided below and their relative locations are presented in Figure 2-2. Additional information regarding historic operations and regulatory involvement at these properties is provided in Section 2.3 and Section 2.4, respectively (Google, 2011).

Cooper Drum Company (EPA ID No.: CAD055753370)

The property formerly occupied by the Cooper Drum Company is located at 9316 South Atlantic Avenue, approximately 1,000 feet north of the Atlantic Avenue Plume. The property encompasses approximately 3.8 acres and is zoned for heavy industrial use. The facility has historically been used to recondition/recycle steel drums and included areas for: drum cleaning and painting; maintenance; storage; offices; and a warehouse. All of the facility buildings have concrete floors and the entire property was asphalt-paved in 1986 (Weston, 2011).

Jervis B Webb Co. (EPA ID No.: CAD008339467)

The Jervis B Webb Co. (Jervis Webb) property is composed of two adjacent parcels and is located approximately 2,000 feet north-northeast of the Atlantic Avenue Plume. The parcels were first developed for industrial use in the 1950s (Google, 2011; Weston, 2011).

The northern parcel of the Jervis Webb property, identified as Webb-Firestone, is located at 5030 Firestone Boulevard and occupies approximately 1.4 acres. The parcel includes a single steel-framed manufacturing building, which occupies approximately 20,000 square feet and is located at the eastern portion of the parcel. Indications of concrete-lined sumps and trenches have been identified within the interior of the building. A below-ground three-stage clarifier was formerly located at the exterior southeast corner of the building. The clarifier was abandoned by 1992 and removed in 1998. A rail spur was formerly located on the western portion of the parcel and extended from the northwestern portion of the Webb-Firestone Parcel to northern portion of the Webb-Rayo parcel (Google, 2011; Weston, 2011).

The southern parcel of the Jervis Webb property, identified as Webb-Rayo, is located at 9301 Rayo Avenue and occupies approximately 2.8 acres. The parcel includes a single corrugated steel manufacturing building, which occupies approximately 38,000 square feet and is located at the central portion of the parcel. In addition, an approximately 10,000 square-foot metal canopy is attached to the north side of the manufacturing building. An approximately 6,500 gallon concrete containment structure and an approximately 250 gallon open-bottom sump were formerly located on the interior of the manufacturing building. These structures were removed in 1996 (Google, 2011; Weston, 2011).

Southern Avenue Industrial Area (EPA ID No.: CAN00905902)

The Southern Avenue Industrial Area property encompasses approximately 3.9 acres and is located at 5211 Southern Avenue, approximately 900 feet northeast of the Atlantic Avenue Plume. The facility includes an approximately 65,000 square-foot manufacturing building, an approximately 1,500 square-foot office building, a covered shed, and a pallet manufacturing area. Three concrete liners are located at the northwest corner of the property and a sump is located at the southeast corner of the manufacturing building. The concrete liners were reportedly used to house three aboveground storage tanks, which were removed from the property prior to 1972 (Weston, 2011).

Proposed LAUSD South Region High School #9

The proposed LAUSD SRHS property is located generally southeast of the Atlantic Avenue Plume; however, the westernmost portion of the SRHS property is within the Plume boundaries. The SRHS property encompasses approximately 35 acres and is located on a total of 35 distinct parcels. The property was developed for industrial use between approximately the mid-1940s and 1952. Numerous industrial facilities formerly occupied the property including, but not limited to: a foundry; a hard chrome plating facility; a pesticide/herbicide manufacturing facility; a pyrotechnic manufacturing facility; a furniture manufacturing facility; a metal fabrication facility; and machine shops. Redevelopment of the property for the proposed school complex began in approximately the late-1990s and, as of 2009, was ongoing (Google, 2011; Parsons, 2008; Weston, 2011).

2.2 Operational History

The area encompassed by the Atlantic Avenue Plume is primarily used for residential, commercial, and light industrial purposes. Commercial and light industrial operations are generally confined to the western and southern portions of the site, adjacent to Atlantic Avenue. Various operations are conducted within the commercial/industrial areas of the site and associated activities generally include, but are not limited to: automotive service and repair; vehicle towing; vehicle brake manufacturing; commercial printing services; asphalt maintenance; and grocery retail (Google, 2011).

The portion of the city of South Gate that includes the Atlantic Avenue Plume was primarily used for agricultural activities from the mid-1800s to the early 1900s. Between approximately 1920 and the 1950s, the majority of the agricultural land was redeveloped into residential and industrial properties. By 1954, activities conducted within the site boundaries were consistent with current operations. Since approximately the 1950s, operations conducted in the areas surrounding the site have included, but are not limited to: drum reconditioning; foundries; machine shops; pesticide production; metal plating; automotive maintenance and repair; and miscellaneous manufacturing. A description of the operations conducted at the most relevant properties in the vicinity of the site is provided below and their relative locations are presented in Figure 2-2 (Weston, 2011).

<u>Cooper Drum Company (EPA ID No.: CAD055753370)</u>

Historic operations at the Cooper Drum facility included drum reconditioning from 1941 to 2003. In 1972, the Cooper Drum Company purchased the northern parcel of the property and expanded the facility to the southern parcel. The company operated the property from 1972 to 1992. Operations included flushing and stripping used drums to recondition them for resale. The primary reconditioning operations were conducted within the drum processing area (DPA), which is located at the central portion of the property, and the hard wash area (HWA), which is located at the northeastern portion of the property. Process waste was collected in open concrete sumps and trenches. The facility was retrofitted in 1987 with closed-top steel tanks over the sumps and with hard-piping replacing the open trenches. In addition, the HWA was moved to within the DPA (ITSI, 2010; Weston, 2011).

In 1992, drum reconditioning operations were sold to the Waymire Drum Company, who operated the facility until 1996. The Cooper Drum Company filed for bankruptcy in 1993. Between 1996 and 2003, the facility was operated by the Consolidated Drum Company. In October 2003, all drum reconditioning equipment, including associated piping and storage tanks, was removed from the property to off-site facilities. As of February 2010, the facility was occupied by a pallet company and a trucking/towing company. The facility has had significant environmental regulatory involvement since at least 1984 (ITSI, 2010; Weston, 2011).

Jervis B Webb Co. (EPA ID No.: CAD008339467)

Historic operations at the northern parcel (Webb-Firestone) of the Jervis Webb property included, but are not limited to: aluminum and stainless steel aircraft rivet manufacturing from the 1950s to approximately 1980; metal stock storage from approximately 1980 to 1997; and equipment/vehicle storage since approximately 2002. The parcel was purchased by Webb of California (i.e. Jervis Webb) from Spears Industries in 1975. Under Spears Industries ownership, the parcel had been operated by the Blake Rivet Company (Blake) since the 1950s. Blake continued on-site manufacturing operations until they went out of business in approximately 1980. The Blake facility was reported to have utilized sulfuric acid, alkaline caustic, and chromic acid in on-site operations. Blake reportedly discharged approximately 4,000 gallons of industrial wastewater via a three-stage clarifier to the municipal sanitary sewer each day. Between approximately 1980 and 1997, the parcel was primarily used as metal stock storage by Webb of California for operations on the adjacent south parcel. In 2002, the parcel was sold to Mr. Jose Ramirez and is currently used as an impound lot (Google, 2011; Weston, 2011).

In 1997, Jervis Webb conducted a soil investigation at the Webb-Firestone parcel. Soil samples collected from the area of the former clarifier exhibited elevated concentrations of TCE and tetrachloroethylene (PCE). In 1998, an additional investigation was conducted that included soil vapor and deep soil borings in the area of the clarifier. This investigation also reported elevated concentrations of TCE and PCE. Subsequent to the removal of the clarifier in 1999, soil vapor extraction (SVE) wells were installed in the vicinity of the clarifier. The SVE system operated from March 2000 to October 2001. Confirmation samples collected subsequent to the termination of the SVE system exhibited a maximum TCE concentration of 0.63 milligrams per kilogram (mg/kg). The residential-soils Regional Screening Level (RSL) for TCE is 2.8 mg/kg (Weston, 2011).

Historic operations at the southern parcel (Webb-Rayo) included, but are not limited to: industrial conveyor system manufacturing from approximately 1954 to 1996; and metal fabrication since approximately 1997. Conveyor system manufacturing operations were conducted at the parcel by Jervis Webb and included metal fabrication (i.e., shearing, bending, sawing, machining, welding) and painting. Manufacturing operations included the use of solvents, thinners, and paints. In the mid-1980s the facility changed its primary solvent from 1,1,1-trichloroethane (1,1,1-TCA) to naphtha petroleum. Waste generated during operations was reportedly stored in 55-gallon drums and subsequently transported off-site to a treatment facility. In 1997, the parcel was sold to Reliable Steel, who operated the facility as a metal fabricator. Specific operations associated with Reliable Steel activities are not known (Weston, 2011).

In 1996, Jervis Webb conducted a soil investigation at the Webb-Rayo parcel. The on-site containment structure and sump were removed during the investigation and soil samples were collected from the areas below the structures. Samples collected from beneath the former sump exhibited elevated concentrations of total lead and relatively low concentrations of total chromium and arsenic. Approximately 35 cubic yards of soil were subsequently removed from the sump area. In addition, one cubic yard of stained soil was removed from a utility trench. Samples collected from the excavated trench soil exhibited 1,1-dichloroethane (1,1-DCA); 1,1,1-TCA; benzene; and toluene. Confirmation samples collected from the excavated trench area did not exhibit detectable concentrations of VOCs (Weston, 2011).

In 1998, Jervis Webb installed three monitoring wells at the Webb-Firestone parcel and two wells at the Webb-Rayo parcel. The wells were screened from 40 to 70 feet bgs and sampled for VOCs. The maximum VOC concentrations were exhibited in samples collected from the well located immediately down-gradient of the former clarifier. The maximum TCE and PCE concentrations were reported as 33,000 µg/L and 200 µg/L, respectively. Additional VOCs reported at relatively low concentrations included, but are not limited to: cis-1,2-DCE; trans-1,2-dichloroethylene (trans-1,2-DCE); and 1,1-DCA. Groundwater monitoring was conducted quarterly at the property from 1998 to 2001 and semi-annually from 2001 to 2004. During the final round of sampling conducted in June 2004, several VOCs were detected at elevated concentrations including: TCE (17,864 µg/L); PCE (98.5 µg/L); cis-1,2-DCE (740.2 µg/L); and trans-1,2-DCE (104.2 µg/L) (Weston, 2011).

<u>Southern Avenue Industrial Area (EPA ID No.: CAN00905902)</u>

Historic operations at the Southern Avenue Industrial Area site include: screw manufacturing prior to 1972, and hot-melt adhesive manufacturing from 1972 until at least 2010. The property was formerly occupied by Screw Products of America, who conducted screw manufacturing operations at the property until the business went bankrupt in 1972. It is not known when screw manufacturing operations at the property began. In approximately 1972, the property was sold to Mr. William Bruck, who used the property to manufacture hot-melt adhesives under the name Bruck Industries. The business was sold in 1981 and began operating under the name Seam Master Industries. As of 2003, the property was owned by Mr. Bruck’s daughter, Joyce Brody (Weston, 2011).

Specific operations associated with screw manufacturing at the property prior to 1972 are not known. As of 2003, the hot-melt adhesive operations included melting an adhesive onto a fiberglass or cotton roll and then using a refrigerated wheel to cool the roll. The adhesive was manufactured on site using ethyl-vinyl acetate, polyethylene, and tackifying resin. Propylene glycol was used as a refrigerant and stored on site in 55-gallon drums. TCE was also historically used and/or stored on site; however, the specific operations that were conducted using TCE, if any, are not known. As of 2002, the facility operator indicated that the on-site sump was not utilized by Seam Master Industries (Weston, 2011).

<u>Proposed LAUSD South Region High School #9</u>

Historic operations at the LAUSD SRHS property include, but are not limited to: foundry operations; hard chrome plating; pesticide/herbicide formulation; welding; metal fabrication; machine shop activities; furniture manufacturing; truck maintenance and repair; and pyrotechnic formulation. The property was primarily used for agricultural activities prior to 1940 and for various industrial operations between approximately 1952 and the mid-1990s. LAUSD began conducting demolition and redevelopment activities at the property in the mid-1990s, and as of 2009, these activities were ongoing (Google, 2011; Weston, 2011).

Numerous environmental investigations have been conducted on the LAUSD property since at least 1989. These investigations identified various hazardous substances in the soil and/or groundwater beneath the property. These substances include, but are not limited to: mercury, chromium, lead, arsenic, cadmium, zinc, TCA, dichloroethylene (DCE), PCE, and polychlorinated biphenyls. To facilitate the remediation of the soils and groundwater beneath the proposed school complex, the property was divided into five operable units (OUs). The soil remediation portion of the project was divided into two units: OU1 (north of Tweedy Boulevard) and OU2 (south of Tweedy Boulevard). The groundwater portion of the project was designated OU3. OU4 is no longer part of the project and it was determined that no remediation was necessary in the OU5 area, which be developed into a private drive. As of February 2010, the cleanup of OU1 had been completed. Since 2005, over 3,500 soil samples have been collected within OU2 and a soil vapor investigation was conducted. Results of these investigations indicate that remediation of the subsurface soils is required to develop the property. The proposed remediation effort includes the excavation of contaminated soils and the installation of an SVE system (Google, 2011; Parsons, 2008; Weston, 2011).

Site-wide groundwater monitoring for OU3 of the LAUSD property was conducted between February and April 2007. During this monitoring event, groundwater samples were collected and analyzed from a total of 69 on-site wells and 3 off-site wells. Four areas of the property were identified as VOC source areas. These source areas are generally located in the southwest and southeast portions of the property. VOCs identified from these source areas include, but are not limited to: TCE; PCE; vinyl chloride (VC); 1,4-dioxane; 1,2,3-trichloropropane (1,2,3-TCP); 1,1,1-TCA; 1,1-DCA; and 1,2-dichloroethane (1,2-DCA) (Parsons, 2008).

2.3 Previous Investigations and Regulatory Involvement

2.3.1 U.S. Environmental Protection Agency

The Atlantic Avenue Plume is not listed in the Resource Conservation and Recovery Act Information (RCRAInfo) database as of March 2, 2011. In addition, no additional sites were identified in the RCRAInfo database as being within the Atlantic Avenue Plume boundaries (Weston, 2011).

Cooper Drum Company (EPA ID No.: CAD055753370)

The Cooper Drum site was placed on the EPA's NPL of hazardous waste sites requiring remedial action on June 14, 2001 (Weston, 2011).

EPA completed a Remedial Investigation (RI) of the site in May 2002. This investigation concluded that subsurface soils and groundwater had been impacted by former drum reconditioning operations at the site. The primary contaminants of concern (CoCs) impacting soil and groundwater at the site were identified as TCE; 1,2,3-TCP; and 1,2-DCA. Additional CoCs include: VC; 1,2-dichloropropane (1,2-DCP); 1,1-DCA; 1,1-DCE; cis-1,2-DCE; PCE; trans-1,2-DCE; benzene; and 1,4-dioxane. Additional CoCs for site soils include: PCBs; PAHs; and lead. The groundwater plume is characterized by relatively high levels of TCE and cis-1,2-DCE (ITSI, 2010; Weston, 2011).

In September 2002, EPA issued a Record of Decision (ROD) for the site. The ROD indicated that groundwater remediation would consist of using a combination of in situ chemical oxidation and extraction/treatment of the contaminated groundwater. Soil remediation for VOCs would consist of a dual phase extraction system to be used in combination with groundwater remediation. Soil remediation for non-VOCs would consist of excavation and off-site disposal. In September 2007, EPA completed the Soil and Groundwater Remedial Design reports. Due to the continued migration of contaminated groundwater from the site and the commingling of the Cooper Drum plume with other plumes down-gradient of the site, it was determined that additional data should be collected down-gradient of the site prior to implementing groundwater remediation (Weston, 2011).

In 2008 and 2009, EPA conducted groundwater sampling down-gradient of the Cooper Drum site to further delineate the contaminated groundwater plume and the area of commingled plumes. During this sampling event, a previously unidentified source of TCE contamination was identified near the western end of Duncan Way. This unidentified source of contamination was considered to be a potential source for the VOC contamination identified during LAUSD investigations at the northwest portion of the proposed SRHS property. This previously unidentified groundwater contamination was designated as the Atlantic Avenue South Gate Plume (ITSI, 2010).

In early 2007, boring CPT-44 was advanced on McCallum Avenue, approximately 390 feet east of Atlantic Avenue and 700 feet south of the Cooper Drum site. Grab groundwater samples were collected from 65 feet bgs, 88 feet bgs, 102 feet bgs, and 114 feet bgs. TCE was not detected in the samples collected from 65 and 114 feet bgs. The samples collected from 88 and 102 feet bgs exhibited TCE concentrations of 0.5 µg/L and 5.1 µg/L, respectively. In addition, the sample collected from 65 feet bgs exhibited a VC concentration of 0.23 µg/L (ITSI, 2010).

In December 2008, additional borings were advanced at the western portion of McCallum Avenue (CPT-46), the western portion of Duncan Way (CPT-47), and the west-central portion of Duncan Way (CPT-48). Discrete-depth sampling was conducted at these locations with sample depths that ranged from 72 to 132 feet bgs. At boring CPT-46, TCE was only detected in the sample collected from 104 feet bgs (2.7 µg/L). At boring CPT-48, TCE was detected in samples collected from 70 feet bgs (1.6 µg/L), 100 feet bgs (7.2 µg/L), and 112 feet bgs (34 µg/L). At boring CPT-47, TCE was detected in samples collected from 70 feet bgs (690 µg/L), 90 feet bgs

(6.5 µg/L), and 103 feet bgs (4.1 µg/L). Additional VOCs identified in the sample collected from 70 feet bgs include, but are not limited to: cis-1,2-DCE (130 µg/L); 1,1-DCE (2.1 µg/L); trans-1,2-DCE (1 µg/L); and VC (0.93 µg/L) (ITSI, 2010).

In May 2009, monitoring wells were installed at the locations of CPT-47 and CPT-48 to further define identified VOC contamination. Well MW-52 was installed at the location of CPT-48 and was screened from 66-76 feet bgs. Well MW-56 was installed at the location of CPT-47 and was screened from 62-72 feet bgs. The sample collected from Well MW-52 exhibited concentrations of TCE (8.2 µg/L); cis-1,2-DCE (6.5 µg/L); trans-1,2-DCE (0.78 µg/L) and 1,2-DCE (2.2 µg/L). The sample collected from Well MW-56 exhibited concentrations of TCE (3,900 µg/L); cis-1,2-DCE (290 µg/L); 1,1-DCE (2.2 µg/L); trans-1,2-DCE (11 µg/L); 1,2-DCE (2.2 µg/L). VC was not detected in the MW-56 sample; however, due to sample dilution required for laboratory analysis of high-level VOC concentrations, the detection limit was increased to 2.5 µg/L, which is above the VC MCL of 0.5 µg/L. No additional sampling has been conducted south of the CPT-47/Well MW-56 and CPT-48/Well MW-52 locations (ITSI, 2010).

In early 2011, the site was transitioned from a Superfund lead site to a Potentially Responsible Parties (PRP) enforcement lead site. Under a Unilateral Administrative Order issued by EPA in February 2009, the PRPs are conducting the cleanup of soil and groundwater contamination at the site under the oversight of the EPA. A Soil Vapor Extraction treatment system was completed for the site and began operating in February 2011. A groundwater treatment system reportedly began operating in fall 2011 to address the contaminated groundwater plume north of Southern Avenue (EPA, 2011).

<u>Jervis B Webb Co. (EPA ID No.: CAD008339467)</u>

The Jervis Webb site was identified as a potential hazardous waste site and entered into CERCLIS on May 14, 1993. A combined Preliminary Assessment (PA) and SI was completed for the site on 30 September 1994. A Site Reassessment was completed for the site on May 23, 2006. Based upon this assessment, the site was given a status of high priority for further assessment (Weston, 2011).

<u>Southern Avenue Industrial Area (EPA ID No.: CAN00905902)</u>

The Southern Avenue Industrial Area site was identified as a potential hazardous waste site and entered into CERCLIS on February 1, 2002. A combined PA/SI was completed for the site on July 17, 2006. Based upon this assessment, the site was given a status of high priority for further assessment (Weston, 2011).

The Southern Avenue Industrial Area site was discovered by EPA during the RI phase of the Cooper Drum site. During the Cooper Drum RI, groundwater samples were collected on and around the Southern Avenue Industrial Area site. Sample analysis indicated a previously unidentified VOC groundwater plume that exhibited relatively high concentrations of TCE; cis-

1,2-DCE; and 1,1-DCE. In 2002, EPA collected soil, groundwater, and sump samples from the Southern Avenue Industrial Area site. Soil samples collected from the site exhibited elevated concentrations of 20 distinct VOCs including: TCE; cis-1,2-DCE; 1,1-DCA; and 1,1-DCE. Groundwater samples collected down-gradient of the property exhibited relatively high concentrations of VOCs; primarily TCE (17,000 µg/L) and cis-1,2-DCE (16,000 µg/L) (Weston, 2011).

2.3.2 Regional Water Quality Control Board

The Atlantic Avenue Plume was not listed in the Geotracker database as of March 3, 2011. The Regional Water Quality Control Board (RWQCB) has had no known involvement with the site (Weston, 2011).

<u>Jervis B Webb Co. (EPA ID No.: CAD008339467)</u>

In October 2001, Jervis Webb submitted a Soil Closure Report to the Los Angeles RWQCB requesting a No Further Action (NFA) status. In January 2002, the RWQCB issued the NFA for the contaminated soils at the Webb-Firestone parcel. However, the RWQCB required that groundwater monitoring be continued at the site (Weston, 2011).

2.3.3 Department of Toxic Substances Control

The Atlantic Avenue Plume was not listed in the California Department of Toxic Substances (DTSC) Envirostor database as of March 3, 2011. The DTSC has had no known involvement with the site (Weston, 2011).

<u>Cooper Drum Company (EPA ID No.: CAD055753370)</u>

In 1989, the DTSC [formerly the California Department of Health Services (DoHS)] collected soil samples from the Cooper Drum property. In combination with studies conducted by Cooper Drum, the investigation identified elevated concentrations of hazardous substances in site soils. Identified substances included, but are not limited to: TCE; PCE; DCE; polychlorinated biphenyls (PCBs); and metals (Weston, 2011).

<u>Jervis B Webb Co. (EPA ID No.: CAD008339467)</u>

In February 2010, the DTSC issued an Imminent and Substantial Endangerment Determination (I&SED) and Remedial Action Order (RAO) to Jervis Webb. Additional respondents to the docket included Mr. Jose Ramirez and Mr. Jeffrey Palmer, the owners of the property formerly occupied by Jervis Webb (Weston, 2011).

Southern Avenue Industrial Area (EPA ID No.: CAN00905902)

In February 2010, the DTSC issued an I&SED/RAO to Ms. Joyce Brody, the owner of the Southern Avenue Industrial Area property, and to Best Tape, Inc. (doing business as Seam Master), the operators of the property (Weston, 2011).

Proposed LAUSD South Region High School #9

The DTSC School Property Evaluation and Cleanup Division currently conducts oversight on the investigations completed by the LAUSD on the proposed SRHS property. In June 1999, the LAUSD entered into a Voluntary Cleanup Agreement with the DTSC to facilitate remediation of the property (Weston, 2011).

2.3.4 County of Los Angeles

The County of Los Angeles' regulatory agencies have had no known involvement with the Atlantic Avenue Plume.

Cooper Drum Company (EPA ID No.: CAD055753370)

Between 1984 and 1989, the Los Angeles Department of Health Services (LADHS) issued several Notices of Violation (NOVs) to the Cooper Drum Company. In 1989, the LADHS required Cooper Drum to conduct soil and groundwater investigations at the property. Under the direction of the LADHS, Cooper Drum excavated and removed contaminated soils from the property and the adjacent Tweedy Elementary School. The Tweedy Elementary School was closed in 1988 due to health concerns over potential student exposure to contamination from the Cooper Drum facility (Weston, 2011).

Jervis B Webb Co. (EPA ID No.: CAD008339467)

In May 1979, the Sanitation District of Los Angeles County issued a NOV to the facility operator Blake, due to the operator having discharged wastewater with elevated concentrations of total chromium [34 milligrams per liter (mg/L)] to the sanitary sewer (Weston, 2011).

In 1996, the Los Angeles County Department of Public Works issued a NFA letter for the Webb-Rayo parcel of the property (Weston, 2011).

Southern Avenue Industrial Area (EPA ID No.: CAN00905902)

Since 1996, several NOVs were issued by the LADHS to the operators of the Southern Avenue Industrial Area property. These NOVs were primarily issued for improper storage/management of hazardous waste, leaky waste containers, ponding of cutting oil on the ground, and failure to dispose of retrograde/unusable oils and solvents. In April 1986, a drum of retrograde TCE was identified by the LADHS during an inspection of the site (Weston, 2011).

2.4 Hydrogeological Setting

The Atlantic Avenue Plume lies within the Central Subbasin in the Coastal Plain of the Los Angeles Groundwater Basin. The Central Subbasin is bound to the north by a surface divide called the La Brea high; to the northeast and east by the less permeable tertiary rocks of the Elysian, Repetto, Merced, and Puente Hills; to the southeast by Coyote Creek; and to the southwest by the Newport Inglewood fault system and the Newport Inglewood uplift. The Los Angeles and San Gabriel rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean. The regional groundwater flow direction within the subbasin is generally to the southwest at the northeastern portion of the subbasin and shifts to the south in the central portion of the subbasin. The average net annual precipitation in the Central Subbasin is approximately 12 inches (DWR, 2004; WRD, 2010).

Throughout the Central Subbasin, groundwater occurs in Holocene alluvium, the upper Pleistocene Lakewood Formation, and the lower Pleistocene San Pedro Formation. The aquifers underlying the site are, in descending order: the Gaspur, Exposition, Gage, Jefferson, Lynwood, Silverado, and Sunnyside. Underlying the Recent alluvium (Gaspur), sediments of the upper Pleistocene Lakewood Formation (Exposition and Gage) are present to a depth of approximately 300 feet bgs. Sediments of the lower Pleistocene San Pedro Formation (Lynwood through Sunnyside) unconformably underlie the Lakewood Formation and extend to approximately 1,300 feet. The San Pedro Formation aquifers are the primary source of municipal groundwater within the subbasin (DWR, 2004; DWR, 1961).

Throughout much of the subbasin, the Pleistocene-age aquifers are under confined conditions due to the presence of fine-grained, low-permeability interbedded sediments. Although these fine-grained sediments, or aquicludes, generally restrict the downward migration of groundwater from overlying aquifers, semipermeable zones within the aquicludes allow aquifers to be interconnected in some areas. Aquifer interconnection within 2 miles of the site has been established between the Gaspur through Gage and between the Jefferson through Silverado. Aquifer interconnection between the Gage and Jefferson, and between the Silverado and Sunnyside, has not been established within 2 miles of the site (DWR, 2004; DWR, 1961).

Local groundwater investigations have been conducted in the vicinity of the Atlantic Avenue Plume. These investigations were associated with the Cooper Drum Company Superfund Site at the northern portions of the Atlantic Avenue Plume and with the LAUSD South Region High School #9 at the southern portions of the site. Based upon these investigations, geologic materials in the unsaturated zone between ground surface and the top of the Gaspur Aquifer are primarily composed of sandy silts to silty clays and have been described as correlating with the Bellflower Aquiclude. Interbedded within the Bellflower Aquiclude are discontinuous lenses of silty-sands that may allow for the presence of one or more perched aquifers. The groundwater flow direction within these perched aquifers is variable and highly sensitive to lithologic variations, groundwater extraction, and/or surface water recharge. At the southern portion of the site, a perched aquifer was identified between approximately 35 and 40 feet bgs with a flow direction towards the northwest. The Bellflower Aquiclude is underlain by the Gaspur Aquifer, an alluvial unit of primarily sands and silty-sands. In the vicinity of the site, the Gaspur Aquifer is found between approximately 60 and 115 feet bgs and has been measured with a horizontal flow direction generally towards the south. Vertical gradient profiling of the Gaspur and underlying Exposition aquifers indicates that these units may be separated by a finer-grained aquitard (AMEC, 2011; ITSI, 2010; Parsons, 2008).

2.5 Waste Characteristics

For HRS purposes, the Atlantic Avenue Plume was considered to be a contaminated groundwater plume with no identified source. Hazardous substances identified at the site as significantly above their relative background concentrations include, but are not necessarily limited to: TCE; cis-1,2-DCE; and trans-1,2-DCE. Insufficient data is currently available to document the precise plume boundaries or to project the future migration of groundwater contaminants (ITSI, 2010; Parsons, 2008).

2.6 Hazard Ranking System (HRS) Pathways

Groundwater sampling conducted on the Atlantic Avenue Plume between April 2007 and May 2009 has identified elevated concentrations of TCE within the shallow Gaspur Aquifer (60-75 feet bgs). One sample was collected from the southern portion of the site and exhibited a TCE concentration of 850 µg/L (April 2007). Two samples were collected from adjacent locations at the northern portion of the site and exhibited TCE concentrations of 690 µg/L (December 2008) and 3,900 µg/L (May 2009). For the purposes of the PA, the sample collected in May 2009 from Well MW-52, which is located approximately 475 feet northeast of the geometric center of the site, was considered to be representative of background concentrations. This sample, which was collected from approximately 71 feet bgs, exhibited a TCE concentration of 8.2 µg/L. In the vicinity of the site, the groundwater flow direction of the shallow Gaspur Aquifer has been calculated to be generally towards the south. There are no known drinking water wells within the boundaries of the site. There are approximately 85 municipal drinking water wells, which are operated by 26 distinct water purveyors, within 4 miles of the site. Fifty-five of these wells are located within 2 miles of the site and serve an apportioned population of approximately 269,000 (AMEC, 2011; Google, 2011; Weston, 2011).

The Atlantic Avenue Plume was considered for HRS purposes to be a contaminated groundwater plume with no identified source. Based upon this information, hazardous substances associated with the site are not eligible for consideration under the surface water, soil exposure, and air pathways.

3.0 PROJECT OBJECTIVES

3.1 Project Task and Problem Definition

WESTON has been tasked to conduct groundwater and soil vapor sampling at the Atlantic Avenue Plume site. Groundwater samples will be collected in the vicinity of the site from the shallow Gaspur aquifer and from the overlying perched aquifer where present. In addition, a limited soil vapor survey will be conducted in the vicinity of the site.

The general objective of this investigation is to gain a more comprehensive understanding of the Atlantic Avenue Plume including potential source areas, plume boundaries, and levels of contamination. In addition, this investigation should allow for a greater understanding of data gaps that need to be addressed to support the specific objectives of this SI as well as any subsequent HRS characterization activities. WESTON has reviewed available site information to determine historic uses and identify hazardous substances that may be present on site.

3.2 Data Use Objectives

Data collected during this site investigation will be used to:

- Identify the approximate plume boundaries and to determine where additional data would need to be collected to more definitively define the plume boundaries and/or any areas of commingling with adjacent plumes.

- Identify the general area of the source of the plume and/or to determine where additional data should be collected to identify a probable source.

- Establish background concentrations for site AOCs and use this data in combination with on-site groundwater concentration data to determine if an observed release of these contaminants can be documented to the perched and/or shallow Gaspur aquifers.

If groundwater samples are found to be contaminated with VOCs above the corresponding action levels an observed release will be documented and integrated into the site's HRS score.

3.3 Action Levels

In accordance with the HRS, the action levels to establish an observed release to groundwater are significantly above background concentrations. "Significantly above background" is defined as three times the background concentration for all media. If the background concentration is below the analytical quantitation limit, then the default background level is the background sample quantitation limit; "significantly above background" for this scenario is defined as a detect in the media where the analyte was not detected in the background media. Samples collected from the upgradient portion of the groundwater plume will be designated as background samples for HRS purposes.

Based on previous investigations discussed in Section 2.3, VOCs are the constituents deemed most likely to be elevated above background levels.

3.4 Decision Rules

Decisions will be based primarily on data generated from this SAP. The decision rules are:

- If groundwater samples collected on site are found to contain concentrations of VOCs significantly above background concentrations, then an observed release to groundwater will be documented and integrated into the site's HRS score.

3.5 Data Quality Objectives

3.5.1 Data Quality Objective (DQO) Process

The DQO process, as set forth in the EPA document, *Guidance for the Data Quality Objectives Process*, EPA QA/G-4, was followed to establish the data quality objectives for this project. An outline of the process and the outputs for this project are included in Appendix A.

3.5.2 DQO Data Categories

This investigation will involve the generation of definitive data for groundwater (see Section 3.1). The specific requirements for this data category are detailed in Section 9. The data generated under this project will comply with the requirements for that data category as defined in *Data Quality Objective Process for Superfund*, EPA 540/G-93/71, September 1993. All definitive analytical methods employed for this project will be methods approved by the EPA.

3.5.3 Data Quality Indicators

Data quality indicator goals (DQIs) for this project were developed following guidelines in *EPA Guidance for Quality Assurance Project Plans*, EPA QA/G-5 Final. All sampling will be guided by procedures detailed in Section 6.2 and standard operating procedures (SOP) to ensure representativeness of sample results. Table 3-1 documents the DQIs for this project. As presented in these tables, the published reporting limits for the Method Reporting Limit (including the EPA Contract Laboratory Program (CLP) modified California Contract Required Quantitation Limits, or CRQLs) were determined to be appropriate for this project. The acceptable ranges for Accuracy (percent recovery for MS/MSD analysis) will fall between 75 and 125 percent for water samples. The threshold of precision (Relative Percent Difference for MS/MSD and duplicate sample analysis) will be less than, or equal to, 35 percent for water samples. The analytical method detection limits for each analyte of concern are lower than the

MCLs for drinking water, the Reference Dose Screen Concentrations, and the Cancer Risk Screen Concentration, as shown in Table 3-1. These action levels are only used as risk-based benchmarks for the purposes of validating the appropriateness of the method detection levels.

Table 3-1: Organic Analysis - VOCs; 1,4-dioxane

COMPOUND	Method Reporting Limits		Action Levels		
	Trace Water	Low Water	MCL	Reference Dose Screen Concentration	Cancer Risk Screen Concentration
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
1,1,1-Trichloroethane	0.0005	0.005	0.2	--	--
1,1,2,2-Tetrachloroethane	0.0005	0.005	--	--	0.00043
1,1,2-Trichloroethane	0.0005	0.005	0.003	0.15	0.0015
1,1-Dichloroethane	0.0005	0.005	--	3.7	--
1,1-Dichloroethene	0.0005	0.005	0.007	1.8	--
1,2,4-Trichlorobenzene	0.0005	0.005	0.07	0.36	--
1,2-Dibromo-3-chloropropane CAL	0.0005	0.005	0.0002	--	0.000061
1,2-Dibromoethane	0.0005	0.005	--	--	0.000001
1,2-Dichloroethane	0.0005	0.005	0.005	--	0.00094
1,2-Dichloropropane	0.0005	0.005	0.005	--	0.0013
Acetone	0.005	0.01	--	33	--
Benzene	0.0005	0.005	0.005	0.15	0.0015
Bromodichloromethane	0.0005	0.005	--	0.73	0.0014
Carbon disulfide	0.0005	0.005	--	3.7	--
Carbon tetrachloride	0.0005	0.005	0.005	0.026	0.00066
Chlorobenzene	0.0005	0.005	0.1	0.73	--
cis-1,2-Dichloroethene	0.0005	0.005	0.07	0.36	--
Ethylbenzene	0.0005	0.005	0.7	3.7	--
m,p-Xylene	0.0005	0.005	1	--	--
Methylene chloride	0.0005	0.005	0.005	2.2	0.011
o-Xylene	0.0005	0.005	1	73	--
Styrene	0.0005	0.005	0.1	7.3	--
Tetrachloroethylene	0.0005	0.005	0.005	0.36	0.0016
Toluene	0.0005	0.005	1	7.3	--
trans-1,2-Dichloroethene	0.0005	0.005	0.1	0.73	--
Trichloroethylene	0.0005	0.005	--	--	0.001
Vinyl chloride	0.0005	0.005	0.002	0.11	0.000057
1,4-Dioxane	0.02	0.1	--	--	--

Notes:
- Method Reporting Limits are based on the standard Contract Laboratory Program Contract-Required Detection Limit or EPA Method, statement of work.
- Accuracy for each analyte (Percent Recovery for MS/MSD) should fall between 75 and 125 % for water samples, and 65% and 135% for soil samples.
- Precision (RPD for MS/MSD and duplicates) should be </= 35% for water samples, and </=50% for soil samples.
- Percent Complete for the project must be >/= 90%.

MCL = Maximum Contaminant Level
mg/L = milligrams per liter
-- = no value

3.6 Sample and Data Management

Samples will be collected and logged on a chain-of-custody form as discussed in Section 8.5. Samples will be kept secure in the custody of the sampler at all times, who will assure that all preservation parameters are being followed. Samples will be transferred to the laboratory via a certified carrier in a properly custody-sealed container with chain-of-custody documentation. The Forms II Lite data management system will be used to create chain-of-custody documents. The laboratory should note any evidence of tampering upon receipt.

The completed laboratory data report will be submitted to the EPA QAO, who will contract the data validation. The EPA QAO, will provide the data validation reports to the EPA SAM. The EPA SAM will then provide the data reports to the WESTON PM. The data validation reports and laboratory data summary sheets will be included in the final report to be submitted to the EPA SAM. Before submittal, the final report will undergo a technical review to ensure that all data have been reported and discussed correctly.

3.7 Schedule of sampling Activities

The work is expected to take five days to perform. The work is tentatively scheduled to be conducted between April 2, 2012 and April 6, 2012.

3.8 Special Training Requirements/Certifications

There are no special training or certification requirements specific to this project. Training requirements relevant to WESTON’s health and safety program comply with 29 CFR 1910.120. The site-specific Health and Safety Plan is presented in Appendix B.

4.0 SAMPLING RATIONALE

4.1 Sampling Locations and Rationale

Based on the available history for the Atlantic Avenue Plume site, WESTON selected a sampling strategy to evaluate the levels of contamination of site AOCs in the perched and shallow Gaspur aquifers at the site and upgradient of the site, to further delineate the extent of the groundwater contamination at the site, and to provide additional information on potential source areas for the observed VOC contamination at the site. Sample locations were selected primarily based upon their proximity to the two previously identified impacted wells, MW-56 and 039-MW1C, and to the projected plume boundaries from the 2011 PA. Soil vapor samples will be collected from the nine CPT boring locations to provide additional information on potential VOC sources as well as background soil gas concentrations. Final sampling locations may be slightly modified from the proposed locations based upon site conditions (e.g., accessibility, underground utilities, etc.). Proposed sample locations are presented in Figure 4-1.

4.1.1 Groundwater Sampling

To further establish the extent of the groundwater release, groundwater samples will be collected in both upgradient (i.e., background) and downgradient locations relative to the site. The direction of groundwater flow in the vicinity of the site has been calculated to be generally towards the south. Based on this information, the proposed upgradient location(s) will be located in a generally northerly direction from the previously identified impacted well, MW-56 (AMEC, 2011).

<u>CPT Borings</u>

The proposed CPT boring locations (CPT-W1 through CPT-W9) are presented in Figure 4-1. At each of the nine borings, two grab groundwater samples will be collected with one sample collected from the perched aquifer at approximately 30 to 40 feet bgs and one sample collected from the shallow Gaspur Aquifer at approximately 65 to 75 feet bgs. The precise depth of sample collection with be determined in the field using the CPT log generated during the advancement of the initial CPT boring. Stratigraphic units that are located within the approximate depth range of the targeted aquifer and that appear to have a relatively high hydraulic conductivity will be targeted for sampling. All CPT grab groundwater samples will be analyzed for VOCs and 1,4-dioxane.

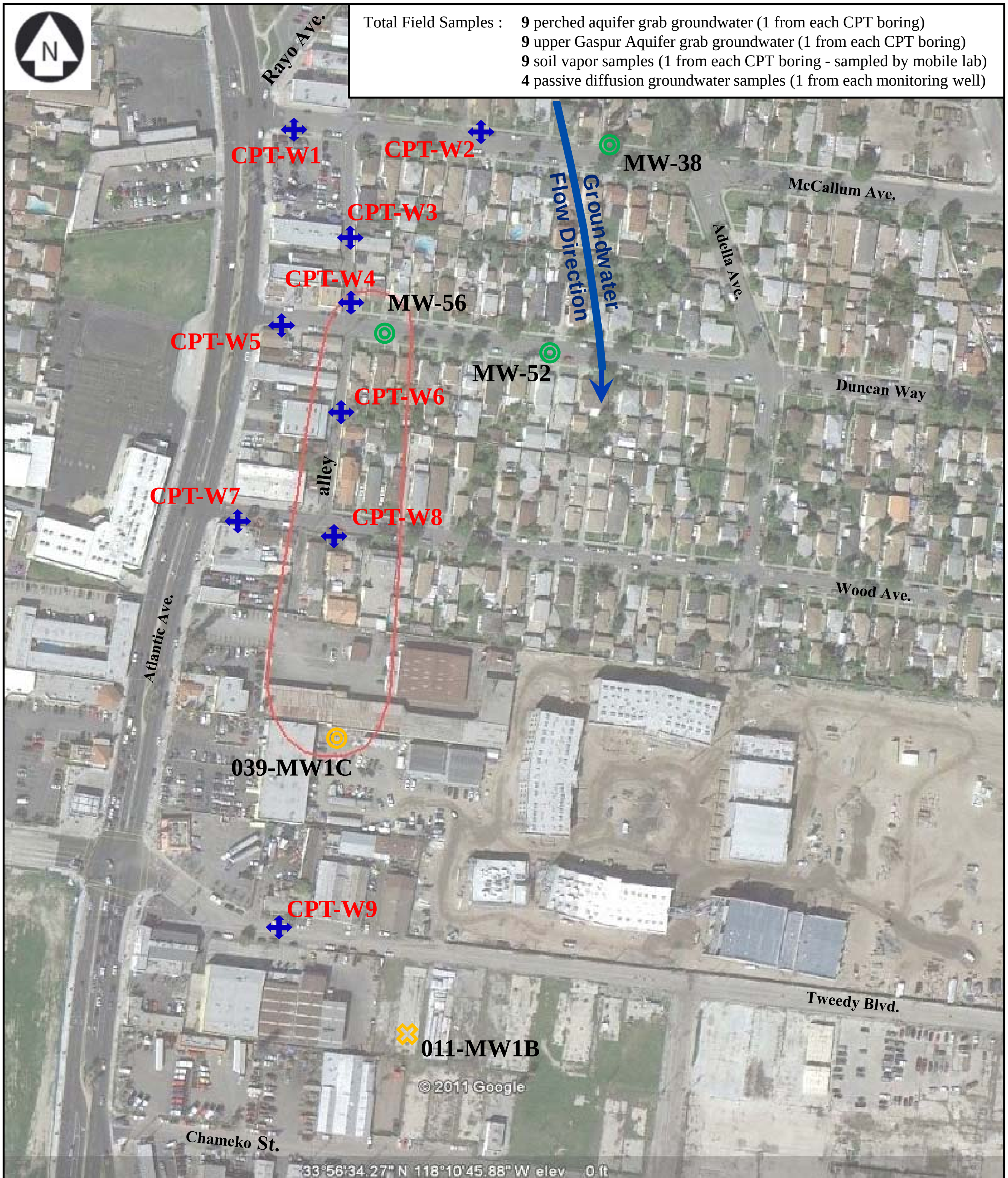
Three CPT boring locations, CPT-W1 through CPT-W3, were selected to be in a generally upgradient direction from the previously identified impacted well, MW-56. The data collected from these locations will be primarily used to further define the northern (i.e., upgradient) extent of the plume and/or define the background concentrations of analytes of concern (AOCs). One CPT location, CPT-W4, was selected to evaluate if contamination is present between the industrial/commercial buildings and MW-56. Two CPT locations, CPT-W5 and CPT-W7, were selected to further define the westerly extent of the plume. Two CPT locations, CPT-W6 and CPT-W8, were selected to determine if the VOC groundwater contamination is continuous between the two previously identified impacted wells, MW-56 and 039-MW1C. One CPT location, CPT-W9, was selected to further define the southerly (i.e., downgradient) extent of the plume.

Existing Monitoring Wells

The proposed existing monitoring well locations are presented in Figure 4-1. At each of the locations, groundwater samples will be collected using “no-purge” passive diffusion sampling equipment. A description of the passive diffusion sampling methodology is provided in Section 6.2. All monitoring well samples will be analyzed for VOCs only. Substances with relatively high water solubility, such as 1,4-dioxane, are not appropriate for passive diffusion sampling due to the membrane of the passive diffusion bag (PDB) being hydrophilic, which repels water and water-soluble contaminants.

Three of the four existing wells to be sampled during this SI event were installed during remediation activities for the upgradient Cooper Drum Superfund Site. These wells include MW-38, MW-52, and MW-56. Prior to the installation of each of these wells, CPT borings were advanced at these locations. WESTON has reviewed the CPT logs to evaluate the aquifer properties within the screened interval of each well. Based upon this information, targeted depths were determined for the PDB sample locations. In well MW-52, a PDB will be placed at approximately 71 to 73 feet bgs. In well MW-56, a PDB will be placed at approximately 67 to 69 feet bgs. The CPT log corresponding to well MW-38 indicates that a layer with relatively low hydraulic conductivity is present within the screening interval. Based upon this information, two PDB samples will be collected from this well with one PDB located at 60 to 62 feet bgs and one PDB located at 64 to 66 feet bgs. Well MW-56 was the well previously identified with the highest VOC concentrations and was selected for sampling during this investigation to verify the presence of VOCs within the shallow Gaspur Aquifer. Well MW-38 was selected to further define the northern extent of the plume and/or define background concentrations. Well MW-52 was selected to further define the eastern extent of the plume.

One of the four existing wells to be sampled during this SI event was installed during investigation activities associated with the LAUSD South Region High School #9 property. The boring log and well construction log for this well, identified as Well 039-MW1C, was reviewed by WESTON and a PDB interval of 72 to 74 feet bgs was selected for sampling. This well has been previously identified with relatively high concentrations of AOCs and was selected for sampling to verify the presence of VOCs within the shallow Gaspur Aquifer at this location. A second LAUSD well, identified as Well 011-MW1B, was initially proposed for sampling as part of this SI event. However, at the request of LAUSD this well will not be sampled by WESTON as part of this investigation due to soil remediation activities being conducted in the vicinity of the wellhead. Data collected from this well by LAUSD during their December 2011 sampling event (or later if possible) will be incorporated into the final SI report.



Legend

Reference: Google Earth; *33° 56' 35.2" N, 118° 10' 48.6" W, 15 November 2009*; http://earth.google.com; data extracted March 4, 2011.

- Atlantic Avenue South Gate Plume Site Boundary (estimated plume boundary)
- Proposed CPT Boring to 80 ft-bgs completed with soil vapor probe (9 Locations)
- Existing Cooper Drum Monitoring Well to be sampled (3 Locations)
- Existing LAUSD SRHS #9 Monitoring Well to be sampled by WESTON (1 Location)
- Existing LAUSD SRHS #9 Monitoring Well to be sampled by LAUSD (1 Location)

Proposed Site Inspection Sample Locations
Atlantic Avenue South Gate Plume
South Gate, CA

WESTON SOLUTIONS
Restoring Resource Efficiency

Figure
4-1

4.1.2 Soil Vapor Sampling

Soil vapor samples will be collected from each of the 9 CPT boring locations. One vapor sample will be collected from each location. The specific soil vapor probe depths will be determined in the field based upon the CPT boring logs; however, the probe depths are estimated to be approximately 5 feet bgs. Soil vapor analysis will be conducted concurrently with the soil vapor sampling by a subcontracted mobile laboratory. The mobile laboratory will maintain all appropriate certifications and will conduct the soil vapor sampling/analysis per the most recent DTSC guidance documents. The soil vapor data collected from these locations will be used to provide additional information on potential VOC sources in the vicinity of the site as well as to evaluate background soil gas concentrations.

4.2 Analytes of Concern

Based on the use of the site and the previous sampling events described in Section 2.3, AOCs at the site are VOCs, specifically TCE; cis-1,2-DCE; and trans-1,2-DCE. The CPT boring samples will additionally be analyzed for 1,4-dioxane due to this contaminant having been identified in some upgradient locations associated with the Cooper Drum Superfund Site. However, 1,4-dioxane is not currently considered an AOC for the Atlantic Avenue Plume site since it has not been detected in on-site samples. Subsequent to the SI sampling event, if any 1,4-dioxane or VOCs in addition to the aforementioned are detected during analysis, they will be evaluated as potential AOCs by comparison with their background concentrations.

5.0 REQUEST FOR ANALYSIS

Laboratory services will be scheduled and arranged for by EPA Region 9 for VOC and 1,4-dioxane analyses. Samples will be analyzed through EPA's CLP and/or EPA Region 9 Laboratory. Sample containers, preservatives, holding times, and estimated number of field and QC samples are summarized in Table 5-1.

As enumerated in Table 5-1, groundwater samples will be collected at 13 locations (9 CPT locations and 4 well locations), with samples collected from two distinct depths at 10 of the locations (All 9 CPT locations and MW-38). Additional double-volume samples will be collected at two locations and will be identified for use as a laboratory QC sample. A total of 23 CPT and/or well field samples and 5 equipment blank field samples will collected for a total of 28 field samples. Based upon this information, 3 field duplicate samples will be collected for a total of 31 groundwater samples. All 31 groundwater sample will be analyzed for VOCs via EPA CLPAS SOM01.1 or equivalent and 20 of the 31 samples, which include the 18 CPT samples and 2 field duplicate samples, will be analyzed for 1,4-dioxane via EPA CLPAS OLM03.1 or equivalent. Both of the laboratory QC samples will be analyzed for VOCs; however, only one of the samples will be analyzed for 1,4-dioxane.

To provide analytical quality control for the analytical program, the following measures will be utilized:

- All sample analysis will be conducted by a laboratory selected by EPA.
- Additional volume of sample will be collected for at least one sample per media per each analytical method, to be utilized for matrix spike/matrix spike duplicate analysis.
- A CLP-type data package will be required from the laboratory for all resultant data.
- Holding times will be strictly observed for each analyte type and medium; holding times for each analysis are presented in Table 5-1.

Table 5-1: Request for Analysis - Water Matrix

ANALYSES REQUESTED				Organic	
ANALYTICAL METHOD				CLPAS SOM01.1	CLPAS OLM03.1
ANALYTES				VOCs	1,4-dioxane
PRESERVATIVES				Add 1:1 HCL to pH <2; no pres. for low conc.; Cool to	Cool to 4°C ±2°C
ANALYTICAL HOLDING TIME(S)				14 days (7 days for low conc.)	14 days
CONTRACT HOLDING TIME(S)				Analyze within 10 days; 5 days for low conc.	Analyze within 10 days
SAMPLE VOLUME				40 mL	1L
SAMPLE CONTAINER				Glass VOA Vial	Glass Amber
NUMBER OF CONTAINERS				3	2
Sample Number	Sample Location	Sample Depth (feet)	Special Designation	VOCs	1,4-dioxane
AAP-GW-01P	CPT-W1	30 - 40 (TBD)	Background	1	1
AAP-GW-01G	CPT-W1	65 - 75 (TBD)	Background	1	1
AAP-GW-02P	CPT-W2	30 - 40 (TBD)	Background	1	1
AAP-GW-02G	CPT-W2	65 - 75 (TBD)	Background	1	1
AAP-GW-03P	CPT-W3	30 - 40 (TBD)	Background	1	1
AAP-GW-03G	CPT-W3	65 - 75 (TBD)	Background	1	1
AAP-GW-04P	CPT-W4	30 - 40 (TBD)	Duplicate	1	1
AAP-GW-04G	CPT-W4	65 - 75 (TBD)	Duplicate	1	1
AAP-GW-05P	CPT-W5	30 - 40 (TBD)		1	1
AAP-GW-05G	CPT-W5	65 - 75 (TBD)		1	1
AAP-GW-06P	CPT-W6	30 - 40 (TBD)		1	1
AAP-GW-06G	CPT-W6	65 - 75 (TBD)		1	1
AAP-GW-07P	CPT-W7	30 - 40 (TBD)		1	1
AAP-GW-07G	CPT-W7	65 - 75 (TBD)		1	1
AAP-GW-08P	CPT-W8	30 - 40 (TBD)		1	1
AAP-GW-08G	CPT-W8	65 - 75 (TBD)		1	1
AAP-GW-09P	CPT-W9	30 - 40 (TBD)		1	1
AAP-GW-09G	CPT-W9	65 - 75 (TBD)		1	1
AAP-GW-09P	CPT-W6	30 - 40 (TBD)	Duplicate	1	1
AAP-GW-09G	CPT-W6	65 - 75 (TBD)	Lab QC	2	2
AAP-GW-38U	MW-38	60 - 62	Background	1	0
AAP-GW-38L	MW-38	64 - 66	Background	1	0
AAP-GW-39G	039-MW1C	72 - 74	Lab QC	2	0
AAP-GW-52G	MW-52	71 - 73		1	0
AAP-GW-56G	MW-56	67 - 69		1	0
AAP-GW-57G	MW-56	67 - 69	Duplicate	1	0
AAP-EB-001	EQ Blank	NA	EQ Blank	1	0
AAP-EB-002	EQ Blank	NA	EQ Blank	1	0
AAP-EB-003	EQ Blank	NA	EQ Blank	1	0
AAP-EB-004	EQ Blank	NA	EQ Blank	1	0
AAP-EB-005	EQ Blank	NA	EQ Blank	1	0
Total Number of Water Samples minus Lab QC and Duplicate Samples				28	18
Total Number of Sample Containers				105	40

6.0 METHODS AND PROCEDURES

6.1 Field Equipment

6.1.1 Sampling Equipment

The following equipment will be used to obtain environmental samples:

Equipment	Fabrication	Dedicated
Passive Diffusion Sampler	Polyethylene	Yes
Bailer	Stainless Steel	No
Water Level Tape	Plastic/Stainless Steel	No
Tubing	Teflon	Yes
Gloves	Nitrile	Yes
Zip-lock bags	Plastic	Yes

A subcontractor will operate the direct push and sampling devices at the nine boring locations (CPT-W1 to CPT-W9). Equipment maintenance at these locations will be the responsibility of the subcontracted companies using standard industry practices. The sampling devices at the four monitoring well sample locations will be operated by WESTON field personnel. All non-dedicated sampling equipment will be decontaminated between samples by washing with a low phosphate detergent solution, followed by two rinses with potable water.

6.1.2 Inspections/Acceptance Requirements for Supplies and Consumables

There are no project-specific inspection/acceptance criteria for supplies and consumables. It is standard operating procedure that: personnel will not use broken or defective materials, items will not be used past their expiration date, supplies and consumables will be checked against order and packing slips to verify the correct items were received, and the supplier will be notified of any missing or damaged items.

6.2 Sampling Procedures

6.2.1 Underground Utilities Clearance

All underground utilities will be located and identified by a geophysical survey team. If any subsurface utilities are suspected beneath proposed borings, the borings will be relocated in order to avoid the utilities. Underground Services Alert will be notified at least 72 hours before drilling commences.

6.2.2 Groundwater Sampling

Groundwater samples will be collected from nine CPT locations (CPT-W1 through CPT-W9) and four existing monitoring wells (MW-38, MW-52, MW-56, and 039-MW1C). At each CPT location, the boring will be initially advanced to a total depth of 80 feet bgs using the CPT drilling rig. As the borehole is advanced, the CPT drill rig will collect subsurface data that will be immediately provided to the WESTON field personnel. Based upon this data, WESTON personnel will determine the appropriate depths to collect groundwater samples from the perched aquifer, if present, and the shallow Gaspur. The CPT drill rig will then advance a second boring to collect both of the groundwater grab samples. This method utilizes an outer casing that seals the borehole and prevents cross-contamination during drilling.

At the designated sample depths in the borehole, an in-situ groundwater sample will be collected using a Hydropunch™ water sampling device, or equivalent. The Hydropunch™ is inserted into undisturbed soils at the base of the borehole. The outer portion of the Hydropunch™ is then retracted to expose a PVC screen in the water-bearing zone. A stainless steel mini-bailer is lowered into the screen for collection of an in-situ groundwater sample. Because groundwater samples collected with a Hydropunch™ are representative of in-situ groundwater conditions, samples may be collected immediately without purging or measurement of water quality parameters. The Hydropunch™ is a sealed unit so water from the upper sample location in the perched aquifer will not migrate to the lower sample location in the Gaspur Aquifer.

At each of the four existing monitoring well locations, groundwater samples will be collected using "no-purge" passive diffusion sampling equipment. This technology requires that a PDB that contains deionized water be inserted into the water column at the targeted depth at least two weeks prior to sample collection. During the insertion period, if VOCs are present in the groundwater, they will diffuse through the PDB and into the deionized water. The PDB is then removed from the well and the sample is collected from the potentially VOC-infused water within the PDB. The PDBs used for this sampling event will be approximately 24 inches in length. All monitoring well samples will be analyzed for VOCs only. Substances with relatively high water solubility, such as 1,4-dioxane, are not appropriate for passive diffusion sampling.

Groundwater samples will be decanted directly from the bailer or PDB into the sample containers with preservative, chilled on ice, and processed for shipment to the laboratory. When transferring samples, care will be taken not to touch the bailer to the sample container. Groundwater samples to be analyzed for VOCs will be collected by pouring the sample directly into 40-mL vials pre-preserved with hydrochloric acid (HCl). The vials will be immediately capped and inverted to check for air bubbles to ensure zero head space. If a bubble appears, the vial will be discarded and a new sample will be collected. Samples intended for 1,4 dioxane analysis will also be collected in the appropriate sample bottles directly from the bailer. For duplicate samples, bottles with the two different sample designations will be filled in an alternating sequence.

6.3 Decontamination Procedures

The decontamination procedures that will be followed are in accordance with approved procedures. Decontamination of sampling equipment must be conducted consistently to assure the quality of samples collected. All non-dedicated equipment that comes into contact with potentially contaminated soil or water will be decontaminated. Disposable equipment intended for one-time use will not be decontaminated, but will be packaged for appropriate disposal. Decontamination will occur prior to and after each use of a piece of non-dedicated equipment. All non-dedicated sampling devices will be steam-cleaned or decontaminated according to EPA Region 9 recommended procedures.

The following, to be carried out in sequence, is an EPA Region 9 recommended procedure for the decontaminated of sampling equipment:

- Non-phosphate detergent and tap-water wash, using a brush if necessary
- Tap-water rinse
- Deionized/distilled water rinse
- Isopropanol or Methanol rinse
- Deionized/distilled water rinse (twice)

Equipment will be decontaminated in a predesignated area on pallets or plastic sheeting, and clean bulky equipment will be stored on plastic sheeting in uncontaminated areas. Cleaned small equipment will be stored in plastic bags. Materials to be stored more than a few hours will also be covered.

7.0 DISPOSAL OF INVESTIGATION DERIVED WASTE

In the process of collecting environmental samples at this site, several different types of potentially contaminated investigation-derived wastes (IDW) will be generated, including the following:

- Used personal protective equipment (PPE)
- Disposable sampling equipment
- Decontamination fluids

The EPA's National Contingency Plan requires that management of IDW generated during site investigations comply with all relevant or appropriate requirements to the extent practicable. This sampling plan will follow the *Office of Emergency and Remedial Response (OERR) Directive* 9345.3-02 (May 1991) which provides the guidance for management of IDW during site investigations. Listed below are the procedures that will be followed for handling IDW. The procedures are flexible enough to allow the site investigation team to use its professional judgment on the proper method for the disposal of each type of IDW generated at each sampling location.

- Used PPE and disposable sampling equipment will be double-bagged in plastic trash bags and disposed of in a municipal refuse dumpster. These wastes are not considered hazardous and can be sent to a municipal landfill. Any PPE or dedicated equipment that is to be disposed of that can still be reused will be rendered inoperable before disposal.

- Decontamination fluids that will be generated in the sampling event will consist of dilute isopropanol/methanol, deionized water, residual contaminants, and water with non-phosphate detergent. The volume and concentration of the decontamination fluid will be sufficiently low to allow disposal at the site or sampling area. The decontamination fluids will be discharged to the ground.

8.0 SAMPLE IDENTIFICATION, DOCUMENTATION AND SHIPMENT

8.1 Field Notes

8.1.1 Field Logbooks

Field logbooks will document where, when, how, and from whom any vital project information was obtained. Logbook entries will be completed and accurate enough to permit reconstruction of field activities. The logbook is bound with consecutively numbered pages. Each page will be dated and the time of entry noted in military time. All entries will be legible, written in ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions. At a minimum, the following information will be recorded, if applicable, during the collection of each sample.

- Sampler's name(s)
- Date and time of sample collection
- Type of sample (e.g., surface water)
- Type of sampling equipment used
- Field instrument readings and calibration readings for any equipment used, and equipment model(s) and serial number(s)
- Field observations and details related to analysis or integrity of samples (e.g., weather conditions, noticeable odors, colors, etc.)
- Sample preservation
- Lot numbers of the sample containers, sample identification numbers and any explanatory codes, and chain-of-custody form numbers
- Shipping arrangements (overnight air bill number)
- Name(s) of recipient laboratory(ies)

In addition to sampling information, the following specifics may also be recorded in the field logbook for each day of sampling:

- Team members and their responsibilities
- Time of arrival on site and time of site departure
- Other personnel on site
- Summary of any meetings or discussions with any potentially responsible parties, or representatives of any federal, state, or other regulatory agency
- Deviations from sampling plans or site safety plan procedures
- Changes in personnel and responsibilities, as well as reasons for the change
- Levels of safety protection
- Record of photographs

8.1.2 Photographs

Photographs will be taken at representative sampling locations and at other areas of interest on site. They will verify information entered in the field logbook. When a photograph is taken, the following information will be written on the logbook or will be recorded in the field photography log:

- Date, location
- Description of the subject photographed
- Name of person taking the photograph

8.2 Sample Nomenclature

A unique, identifiable name will be assigned to each sample. The prefix “AAP” will be used to identify the Atlantic Avenue Plume site. The qualifiers GW (groundwater) will be used to identify the sample medium. A unique number will be assigned to each sample location, which will include two digits and be based upon the boring/monitoring well identification and the sampled aquifer. Samples collected from the perched aquifer will be designated with a “P” and samples collected from the Gaspur Aquifer will be designated with a “G.” For example, a sample collected from the perched aquifer at boring location CPT-W5 will be identified as AAP-GW-05P while a sample collected from the Gaspur Aquifer at MW-52 will be identified as AAP-GW-52G. At Well MW-38, two samples will be collected from distinct depths within the Gaspur Aquifer. In this situation a “U” will indicate the upper sample and a “L” will indicate the lower sample. Duplicate and blank samples will be assigned fictitious names. The EPA Regional Sample Control Coordinator may assign additional sample numbers. See Section 4 and Table 5-1 for specific nomenclature and location assignments.

8.3 Containers, Preservation, and Holding Time Requirements

All sample containers used will have been delivered to WESTON in a pre-cleaned condition. Container, preservation, and holding time requirements are summarized in Table 5-1.

8.4 Sample Labeling, Packaging, and Shipping

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. Sample labels will be created using the Forms II Lite data management system. Sample labels will be affixed to the sample containers and secured with clear tape. Samples will have preassigned, identifiable and unique numbers in accordance with Section 8.2. The sample labels will contain the following information where appropriate:

- Sample number
- Sample location
- Date and time of collection

- Site name
- Analytical parameter and method of preservation
- CLP Case Number (if applicable)

Sample coolers will be retained in the custody of site personnel at all times or secured so as to deny access to anyone else. The procedures for shipping samples are as follows:

- The bottom of the cooler will be lined with bubble wrap to prevent breakage during shipment.
- Screw caps will be checked for tightness.
- Sample containers will have custody seals affixed so as to prevent opening of the container without breaking the seal.
- All glass sample containers will be wrapped in bubble wrap.
- All containers will be sealed in zip-lock plastic bags.

All samples will be placed in coolers with the appropriate chain-of-custody forms. The Forms II Lite data management system will be used to create all chain-of-custody forms. All forms will be enclosed in plastic bags and affixed to the underside of the cooler lid. Empty space in the cooler will be filled with bubble wrap or styrofoam peanuts to prevent movement and breakage during shipment. Each ice chest will be securely taped shut with strapping tape, and custody seals will be affixed to the front, right, and back of each cooler.

Samples will be shipped for immediate delivery to the contracted laboratory. The EPA Region 9 Regional Sample Control Coordinator (Garrett Peterson (510) 412-2389) will be notified daily of the sample shipment schedule and will be provided with the following information:

- Sampling contractor's name
- The name of the site
- Case number
- Shipment date and expected delivery date
- Total number of samples by matrix, and relative level of contamination (i.e., low, medium, or high)
- Carrier, air bill number(s), and method of shipment (e.g., priority)
- Irregularities or anticipated problems associated with the samples
- Whether additional samples will be sent, if this is the last shipment

8.5 Chain of Custody Requirements and QA/QC Summary Forms

A chain of custody form will be maintained for all samples to be submitted for analysis, from the time the sample is collected until its final deposition. Every transfer of custody must be noted and signed for; a copy of this record is kept by each individual who has signed. Corrections on sample paperwork will be made by drawing a single line through the mistake and initialing and dating the change. The correct information will be entered above, below, or after the mistake. When samples are not under the direct control of the individual responsible for them, they must be stored in a locked container sealed with a custody seal. The chain of custody must include the following:

- Sample identification numbers
- Site name
- Sample date
- Number and volume of sample containers
- Required analyses
- Signature and name of samplers
- Signature(s) of any individual(s) with control over samples
- Airbill number
- Note(s) indicating special holding times and/or detection limits

Traffic reports will be used to document sample collection and shipment to the laboratory for analysis. The Forms II Lite data management system will be used to generate all traffic reports and chains of custody. One copy will be completed and sent with the samples for each laboratory and each shipment. If multiple coolers are sent to a single laboratory on a single day, only one form will be completed. If all sample information cannot be entered in one form, then multiple forms will be used. One copy of the form will be sent to the EPA RSCC, another copy will be sent to Contract Laboratory Analytical Services Support, and one copy will accompany the samples to the laboratory. A photocopy of the original will be made for WESTON's master file. The document titled "*Contract Laboratory Program Guidance for Field Samplers*," EPA Superfund document 540-R-07-06, will be taken to the field as a reference. This document is included in Appendix D.

A QA/QC summary form will be completed for each laboratory and each matrix of the sampling event. The sample number for all blanks, reference samples, laboratory QC samples (MS/MSDs) and duplicates will be documented on this form. This form is not sent to the laboratory. The original form will be sent to the EPA; a photocopy of the original will be made for WESTON's master file.

9.0 QUALITY ASSURANCE AND CONTROL (QA/QC)

9.1 Field Quality Control Samples

The QA/QC samples described in the following subsections, which are also listed in Table 5-1, will be collected during this investigation.

9.1.1 Assessment of Field Contaminants (Blanks)

9.1.1.2 Equipment Blanks

Equipment rinsate blanks will be collected to evaluate field sampling and decontamination procedures by pouring distilled water over the decontaminated sampling equipment. One equipment rinsate blank will be collected per day for each piece of sampling equipment that is decontaminated in the field. Equipment rinsate blanks will be obtained by passing water through or over the decontaminated sampling devices used that day. Equipment blanks will be analyzed for VOCs only (see Table 5-1).

The equipment blanks will be preserved, packaged, and sealed in the manner described for the groundwater samples in Section 6.2. A separate sample number will be assigned to each sample, and it will be submitted blind to the laboratory.

If any compound is detected in field blanks or equipment blanks, then sample data will be considered acceptable without qualification only if the results are above five times the amount detected in the blank(s) for each respective analyte. If the analyte detected in the blank is a common laboratory contaminate, then the sample results for those analytes would be qualified unless the results are above ten times the amount detected in the blank(s). Sample results that are below five times (ten times for common laboratory contaminants) the amount detected in the blanks, additional evaluation will be require during data validation.

9.1.1.3 Temperature Blanks

For each cooler that is shipped or transported to an analytical laboratory, a 40-mL vial of deionized water will be included that is marked “temperature blank.” This blank will be used by the sample custodian to check the temperature of samples upon receipt.

9.1.2 Assessment of Sample Variability (Field Duplicates or Co-located Samples)

Duplicate groundwater samples will be collected at the sample locations indicated in Table 5-1. Locations for duplicate samples were chosen based on the potential of the sample containing AOCs. At a minimum, one sample per 10 samples, per matrix, will be designated as a duplicate sample.

When collecting duplicate water samples, bottles with the two different sample identification numbers will be alternated in the filling sequence.

Duplicate samples will be preserved, packaged, and sealed in the same manner described for the groundwater samples in Section 6.2. A separate sample number will be assigned to each duplicate, and it will be submitted blind to the laboratory.

9.2 Background Samples

Background groundwater samples will be collected upgradient of the site to differentiate between on-site and off-site contributions to contamination. Since the site is being evaluated as a groundwater plume with no identified source, the four background locations (CPT-W1 through CPT-W3, and MW-38) may be incorporated into the site/plume boundaries depending on the exhibited concentrations of AOCs. In the event that all four locations exhibit concentrations of site AOCs and are incorporated within the plume boundaries, an appropriate background concentration will be selected from an upgradient Cooper Drum well. Background samples indicated in Table 5-1 will be collected from the location shown in Figure 4-1. Background samples will be submitted blind to the laboratory and analyzed by the methods indicated in Table 5-1.

9.3 Laboratory Quality Control Samples

A laboratory QC sample is not an extra sample; rather, it is a sample that requires additional QC analyses.

For groundwater samples, a double-volume groundwater sample will be collected at one assigned location to ensure that sufficient volume is collected for both routine sample analysis and additional laboratory QC analysis. Two sets of water sample containers are filled and all containers are labeled with a single sample number.

For this sampling event, the samples collected at the locations indicated in Table 5-1 will be the designated laboratory QC samples. These locations were chosen because they are suspected to contain detectable levels of AOCs. The sample labels and chain-of-custody records for these samples will identify them as a laboratory QC samples. At a minimum, one sample per 20 samples, per matrix, will be designated as a laboratory QC sample.

9.4 Analytical and Data Package Requirements

It is required that all samples be analyzed in accordance with the methods listed in Table 5-1. The laboratory is required to supply documentation to demonstrate that their data meet the requirements specified in the contract.

The data validation package shall include all original documentation generated in support of this project. In addition, the laboratory will provide original documentation to support that all requirements of the methods have been met. This includes, but is not limited to, sample tags, custody records, shipping information, sample preparation/extraction records, and instrument printouts such as mass spectra. Copies of information and documentation required in this document are acceptable. CLP methods will follow the contract required data package requirement.

9.5 Data Validation

Validation of analytical data generated by the CLP and contract laboratories for this investigation will be contracted by the EPA in accordance with the *EPA Contract Laboratory Program National Functional Guidelines for Low Concentration Organic Data Review* (*EPA540-R-00-006,* June 2001). Tier 3 validation for 100% of the data will be required.

To meet requirements for categorization as definitive data, the following criteria will be evaluated:

- Holding times
- Sampling design approach
- Blank contamination
- Initial and continuing calibration
- Detection limits
- Analyte identification and quantitation
- Matrix spike recoveries
- Performance evaluation samples when specified
- Analytical and total error determination
- Laboratory Control Samples.

Upon completion of validation, data will be classified as one of the following: acceptable for use without qualifications, acceptable for use with qualifications, or unacceptable for use.

9.6 Field Variances

As conditions in the field may vary, it may become necessary to implement minor modifications to this plan. When appropriate, the EPA will be notified of the modifications and a verbal approval obtained before implementing the modifications. Modifications to the original plan will be documented in the final report.

9.7 Assessment of Project Activities

9.7.1 WESTON Assessment Activities

The following assessment activities will be performed by WESTON:

- All project deliverables (SAP, Data Summaries, Data Validation Reports, Site Inspection Report) will be peer-reviewed prior to release to the EPA. In time-critical situations, the peer review may be concurrent with the release of a draft document. Errors discovered in the peer review process will be reported by the reviewer to the originator of the document, who will be responsible for corrective action.

- The WESTON QA Officer will review project documentation (logbooks, chain of custody forms, etc.) to ensure the SAP was followed and that sampling activities were adequately documented. The QA Officer will document deficiencies and the Field Project Manager will be responsible for corrective actions. The QA Officer is also responsible for Review and assessment of the data for data quality issues for the project.

- The WESTON Project Manager is responsible for the review of data, and ensuring that sampling design approach and total error determination meet the DQOs for this project.

9.7.2 EPA Assessment Activities

EPA assessment activities, which can include surveillance, management system reviews, readiness reviews, technical system audits, performance evaluation, and audits and assessments of data quality, have not been formally identified to WESTON by the EPA at the time of completion of the SAP.

9.7.3 Project Status Reports to Management

It is standard procedure for the WESTON PM to report to the EPA SAM any issues, as they occur, that arise during the course of the project that could affect data quality, data use objectives, the project objectives, or project schedules.

9.7.4 Reconciliation of Data with DQOs

Assessment of data quality is an ongoing activity throughout all phases of a project. The following outlines the methods to be used by WESTON for evaluating the results obtained from the project.

- Review of the DQO outputs and the sampling design will be conducted by the WESTON QA Officer and the EPA prior to sampling activities. The reviewer will submit comments to the WESTON PM for action, comment, or clarification. This process will be iterative.

- A preliminary data review will be conducted by WESTON. The purpose of this review is to look for problems or anomalies in the implementation of the sample collection and analysis procedures and to examine QC data for information to verify assumptions underlying the DQOs and the SAP. Anomalies may include changes in the Method Detection Limits (MDLs) as a result of dilution, sampling, and/or matrix factors across the sample suite; such anomalies will be reported in writing to the SAM when they are confirmed.

- Data review will also include a comparison of analytical results, Method Detection Limits, and background concentrations in an effort to determine whether each result can be identified as “significantly above,” or “significantly below” background, as defined in Section 3.3.

10.0 REFERENCES

AMEC, 2011 — AMEC; *First Semi-Annual 2011 Groundwater Monitoring Report, Operable Unit 1, Cooper Drum Superfund Site*; August 31, 2011.

DWR, 1961 — Department of Water Resources, State of California; *Bulletin No. 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology*; June 1961.

DWR, 2004 — Department of Water Resources, State of California; *California's Groundwater Bulletin 118, Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin*; February 27, 2004.

EPA, 2011 — U.S. Environmental Protection Agency; Region 9 Superfund; Site Overview by Site Name; *Cooper Drum Co.*; http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/vwsoalphabetic/Cooper+Drum+Co.?OpenDocument; data extracted November 15, 2011.

Google, 2011 — Google Earth; *33˚ 56' 35.2" N, 118˚ 10' 48.6 " W, 15 November 2009*; http://earth.google.com; data extracted March 4, 2011.

ITSI, 2010 — Innovative Technical Solutions, Inc.; *Cooper Drum Company Superfund Site, Remedial Design, Technical Memorandum for Field Sampling Results, Addendum No. 4*; February 2010.

Parsons, 2008 — Parsons; *Final Phase 3, Groundwater Operable Unit 3, Monitoring Report, Proposed South Region High School #9 and Middle School #4 site*; January 2008.

Weston, 2011 — Weston Solutions, Inc.; *Preliminary Assessment Report, Atlantic Avenue South Gate Plume*; October 2011.

WRD, 2010 — Water Replenishment District of Southern California; *Engineering Survey and Report*; March 19, 2010, updated: May 11, 2010.

APPENDIX A:

DATA QUALITY OBJECTIVE WORKSHEET

Data Quality Objective Process Worksheet

Atlantic Avenue South Gate Plume
HRS Objectives

1. State the Problem - Summarize the contamination problem that will require new environmental data, and identify the resources available to resolve the problem.

Planning Team:
Matt Mitguard, EPA Site Assessment Manager
Brian P. Reilly, Weston Solutions, Inc.
Christina Marquis, Weston Solutions, Inc.

Matt Mitguard of the EPA is the primary decision maker of the scoping team for this assessment.

Problem: In 2008 and 2009, during EPA sampling associated with the Cooper Drum Company (Cooper Drum) Superfund site (EPA ID No.: CAD055753370), previously unidentified volatile organic compound (VOC) groundwater contamination was discovered in the shallow Gaspur Aquifer. The previously unidentified contamination exhibited concentrations of trichloroethylene (TCE) up to 3,900 micrograms per liter (µg/L) and cis-1,2-dichloroethylene (cis-1,2-DCE) up to 290 µg/L. Up-gradient and cross-gradient samples exhibited maximum TCE and cis-1,2-DCE concentrations of 8.2 µg/L and 6.5 µg/L, respectively. The Maximum Contaminant Levels (MCL) for TCE and cis-1,2-DCE are 5 µg/L and 70 µg/L, respectively.

In 2007, a groundwater sample collected by the Los Angeles Unified School District (LAUSD) at the northwestern portion of the proposed South Region High School #9 (SRHS) property, exhibited a TCE concentration of 850 µg/L. There is the potential that the TCE contamination identified in this sample is related to the previously unidentified VOC contamination discovered by EPA in 2008/2009.

A Preliminary Assessment (PA) Report was completed by EPA in March 2011 to assess the previously unidentified VOC groundwater plume identified in the Cooper Drum and LAUSD monitoring wells. Based on this PA, EPA determined that additional sampling would be necessary to better define the extent of the groundwater contamination and to identify a probable source area

For HRS purposes, the Atlantic Avenue Plume was considered to be a contaminated groundwater plume with no identified source. Hazardous substances identified at the site as significantly above their relative background concentrations include, but are not necessarily limited to: TCE; cis-1,2-dichloro-ethylene (cis-1,2-DCE); and trans-1,2-dichloroethylene (trans-1,2-DCE). Insufficient data is currently available to document the precise plume boundaries or to project the future migration of groundwater contaminants.

Available Resources:
Use of EPA CLP, Region 9, or private laboratories. All work and reporting should be completed by a future date that is not yet determined. The EPA Quality Assurance Office will provide data validation.

2. Identify the Decision - Identify the decision that requires new environmental data to address the contamination problem.

Principal Study Questions:

- Can a general source area of the identified VOC contamination be identified and/or can areas where additional data is required to determine a probable source be identified?

- Can the background concentrations for site analytes of concern (AOCs) be established and can this data be used in combination with on-site groundwater concentration data to document an observed release of these contaminants to the perched and/or shallow Gaspur aquifers?

- Can the approximate plume boundaries be identified and/or can areas where additional data would need to be collected to more definitively define the plume boundaries and/or any areas of commingling with adjacent plumes be identified?

Define the alternative actions that could result from the resolution of the principal study questions:

a) The site could be added to the National Priorities List through the HRS process;
b) No further EPA Superfund action could occur at the site.

Decision Statement: If groundwater samples are found to be contaminated with VOCs above the corresponding action levels an observed release will be documented and integrated into the site's HRS score.

3. Identify Inputs to the Decision - Identify the information needed to support the decision, and specify which inputs require new environmental data.

Information required to resolve the decision statement: Definitive laboratory analysis of VOCs in groundwater.

Source(s) for information: Data sources for the HRS assessment will be limited to this sampling event. Existing data produced by other investigations will not meet HRS comparability requirements. Groundwater sample data collected from additional nearby wells within a similar time period to this event may be used in conjunction with the data collected during the SI event.

Information needed to establish action levels: The action levels for groundwater are, as dictated by the HRS, concentrations elevated above the background levels from a comparable background location located outside of the area potentially influenced by the site. For most AOCs, significantly above background is defined as three times above the background concentration. Therefore, comparable background samples will be collected from groundwater to establish action levels.

Confirm that measurement methods exist to provide data:
VOCs via EPA CLPAS SOM01.1 or equivalent

4. Define the Study Boundaries - Specify the spatial and temporal aspects of the environmental media that the data must represent to support the decision.

Specific characteristics that define population being studied: Concentrations of VOCs in groundwater.

Spatial boundary of decision statement: Groundwater as being defined within the Atlantic Avenue South Gate plume.

Temporal boundary of decision statement: The data will represent the conditions of site contaminants impacting groundwater in the foreseeable future. For the HRS objectives, all data will be compared to background samples collected as part of the same sampling event to minimize any temporal effects on the data. Data will be useable for comparison to health based action levels based on risk from long term exposure.

When to collect samples: No practical constraints on samples.

Practical constraints on data collection: Site access will be required from EPA.

5. Develop a Decision Rule - Develop logical statements that define the conditions that would cause the decision maker to choose among alternative actions.

Statistical parameter that characterizes a population: Each analytical result, not a statistical parameter such as mean concentration, will be evaluated against the action levels.

Specify the action level(s) for the study: The action levels are, as dictated by the HRS, concentrations elevated above the background levels from a comparable background location located outside of the area potentially influenced by the site. For most analytes of concern, significantly above background is defined as three times above the background concentration.

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Decision Rules:

- If groundwater is found to be contaminated by VOCs, then an observed release will be documented and integrated into the site's HRS score.

6. Specify the Limits on Decision Errors - Specify the decision makers acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainty in the data.

Use of biased sampling points precludes statistical determination of limits on decision errors. Measurement error, rather than sampling error, is deemed to be the primary factor affecting any decision error. Validated, definitive data will be required to limit measurement error. Sampling error will be limited to the extent practicable by following approved EPA methods and applicable SOPs. Sampling error and tolerable limits cannot be quantified.

7. Optimize the Design for Obtaining Data - Identify the most resource-effective sampling and analysis design for generating data that are expected to satisfy the DQOs.

   The goal of this sampling event is to document an observed release to groundwater and delineate the boundaries of the Atlantic Avenue Plume. Groundwater will be sampled to satisfy this goal.

APPENDIX B:

SITE SPECIFIC HEALTH AND SAFETY PLAN

APPENDIX C:

STANDARD OPERATING PROCEDURES

APPENDIX D:

INSTRUCTIONS FOR SAMPLE SHIPPING AND DOCUMENTATION

APPENDIX F:
Analytical Results

Sample Summary Report

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	SBLK39	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	VBLK2I	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	3.5	UG/L	1.0	J	J	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.45	UG/L	1.0	J	J	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.27	UG/L	1.0	J	J	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	VBLK2Y	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.30	UG/L	1.0	J	J	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.23	UG/L	1.0	J	J	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	VBLK31	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.30	UG/L	1.0	J	J	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.31	UG/L	1.0	J	J	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	UJ	Yes	
1,2,3-Trichlorobenzene	0.29	UG/L	1.0	J	J	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	VBLK35	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.38	UG/L	1.0	J	J	Yes	
1,2,3-Trichlorobenzene	0.41	UG/L	1.0	J	J	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	VBLK3J	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	UJ	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	VHBLK01	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.24	UG/L	1.0	J	J	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	UJ	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT0	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-38U	pH:	2	Sample Date:	04/09/2012	Sample Time:	11:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.36	UG/L	1.0	J	J	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.43	UG/L	1.0	J	J	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	UJ	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	UJ	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT1	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-38L	pH:	2	Sample Date:	04/09/2012	Sample Time:	11:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.70	UG/L	1.0			Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.39	UG/L	1.0	J	J	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	UJ	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	UJ	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT2	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-39G	pH:	2	Sample Date:	04/09/2012	Sample Time:	09:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.5	UG/L	1.0			Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	1.6	UG/L	1.0			Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	UJ	Yes	
cis-1,2-Dichloroethene	77	UG/L	1.0	E		Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	UJ	Yes	
Chloroform	0.50	UG/L	1.0	U	UJ	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	47	UG/L	1.0	E		Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	UJ	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	2.5	UG/L	1.0			Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	UJ	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.17	UG/L	1.0	J	J	Yes	
o-Xylene	0.24	UG/L	1.0	J	J	Yes	
m,p-Xylene	0.82	UG/L	1.0			Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	UJ	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT2DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-39G	pH:	2	Sample Date:	04/09/2012	Sample Time:	09:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	4.0	UG/L	8.0	U	U	Yes	
Chloromethane	4.0	UG/L	8.0	U	U	Yes	
Vinyl chloride	4.0	UG/L	8.0	U	U	Yes	
Bromomethane	4.0	UG/L	8.0	U	U	Yes	
Chloroethane	4.0	UG/L	8.0	U	U	Yes	
Trichlorofluoromethane	4.0	UG/L	8.0	U	U	Yes	
1,1-Dichloroethene	4.0	UG/L	8.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	4.0	UG/L	8.0	U	U	Yes	
Acetone	40	UG/L	8.0	U	U	Yes	
Carbon disulfide	4.0	UG/L	8.0	U	U	Yes	
Methyl acetate	4.0	UG/L	8.0	U	U	Yes	
Methylene chloride	4.0	UG/L	8.0	U	U	Yes	
trans-1,2-Dichloroethene	4.0	UG/L	8.0	U	U	Yes	
Methyl tert-butyl ether	4.0	UG/L	8.0	U	U	Yes	
1,1-Dichloroethane	4.0	UG/L	8.0	U	U	Yes	
cis-1,2-Dichloroethene	49	UG/L	8.0	D		Yes	
2-Butanone	40	UG/L	8.0	U	U	Yes	
Bromochloromethane	4.0	UG/L	8.0	U	U	Yes	
Chloroform	4.0	UG/L	8.0	U	U	Yes	
1,1,1-Trichloroethane	4.0	UG/L	8.0	U	U	Yes	
Cyclohexane	4.0	UG/L	8.0	U	U	Yes	
Carbon tetrachloride	4.0	UG/L	8.0	U	U	Yes	
Benzene	4.0	UG/L	8.0	U	U	Yes	
1,2-Dichloroethane	4.0	UG/L	8.0	U	U	Yes	
Trichloroethene	27	UG/L	8.0	D		Yes	
Methylcyclohexane	4.0	UG/L	8.0	U	U	Yes	
1,2-Dichloropropane	4.0	UG/L	8.0	U	U	Yes	
Bromodichloromethane	4.0	UG/L	8.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	4.0	UG/L	8.0	U	U	Yes	
4-Methyl-2-pentanone	40	UG/L	8.0	U	U	Yes	
Toluene	4.0	UG/L	8.0	U	U	Yes	
trans-1,3-Dichloropropene	4.0	UG/L	8.0	U	U	Yes	
1,1,2-Trichloroethane	4.0	UG/L	8.0	U	U	Yes	
Tetrachloroethene	4.0	UG/L	8.0	U	U	Yes	
2-Hexanone	40	UG/L	8.0	U	U	Yes	
Dibromochloromethane	4.0	UG/L	8.0	U	U	Yes	
1,2-Dibromoethane	4.0	UG/L	8.0	U	U	Yes	
Chlorobenzene	4.0	UG/L	8.0	U	U	Yes	
Ethylbenzene	4.0	UG/L	8.0	U	U	Yes	
o-Xylene	4.0	UG/L	8.0	U	U	Yes	
m,p-Xylene	4.0	UG/L	8.0	U	U	Yes	
Styrene	4.0	UG/L	8.0	U	U	Yes	
Bromoform	4.0	UG/L	8.0	U	U	Yes	
Isopropylbenzene	4.0	UG/L	8.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	4.0	UG/L	8.0	U	U	Yes	
1,3-Dichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,4-Dichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,2-Dichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	4.0	UG/L	8.0	U	U	Yes	
1,2,4-Trichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,2,3-Trichlorobenzene	4.0	UG/L	8.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT2MS	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-39G	pH:	2	Sample Date:	04/09/2012	Sample Time:	09:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,1-Dichloroethene	2.6	UG/L	1.0		J	Yes	
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Benzene	5.2	UG/L	1.0			Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	37	UG/L	1.0	E		Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Toluene	7.1	UG/L	1.0			Yes	
Chlorobenzene	5.3	UG/L	1.0			Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	J	U	Yes	
trans-1,2-Dichloroethene	1.5	UG/L	1.0			Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	65	UG/L	1.0	E		Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.25	UG/L	1.0	J	J	Yes	
m,p-Xylene	0.83	UG/L	1.0			Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP
Sample Number:	Y8AT2MSD	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-39G	pH:	2	Sample Date:	04/09/2012	Sample Time:	09:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,1-Dichloroethene	3.2	UG/L	1.0		J	Yes	
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Benzene	5.3	UG/L	1.0			Yes	
Trichloroethene	30	UG/L	1.0	E		Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Toluene	6.6	UG/L	1.0			Yes	
Chlorobenzene	5.3	UG/L	1.0			Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	J	U	Yes	
trans-1,2-Dichloroethene	1.3	UG/L	1.0			Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	56	UG/L	1.0	E		Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.25	UG/L	1.0	J	J	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.23	UG/L	1.0	J	J	Yes	
m,p-Xylene	0.67	UG/L	1.0			Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT3	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-52G	pH:	2	Sample Date:	04/09/2012	Sample Time:	12:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	1.2	UG/L	1.0			Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	5.1	UG/L	1.0			Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	1.5	UG/L	1.0			Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.81	UG/L	1.0			Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.29	UG/L	1.0	J	J	Yes	
m,p-Xylene	0.59	UG/L	1.0			Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	UJ	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	UJ	Yes	
Diisopropyl ether			1.0	NJ		Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT4	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-56G	pH:	2	Sample Date:	04/09/2012	Sample Time:	12:45:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	5.0	UG/L	10.0	U	U	Yes	
Chloromethane	5.0	UG/L	10.0	U	U	Yes	
Vinyl chloride	5.0	UG/L	10.0	U	U	Yes	
Bromomethane	5.0	UG/L	10.0	U	U	Yes	
Chloroethane	5.0	UG/L	10.0	U	U	Yes	
Trichlorofluoromethane	5.0	UG/L	10.0	U	U	Yes	
1,1-Dichloroethene	5.0	UG/L	10.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	UG/L	10.0	U	U	Yes	
Acetone	50	UG/L	10.0	U	U	Yes	
Carbon disulfide	5.0	UG/L	10.0	U	U	Yes	
Methyl acetate	5.0	UG/L	10.0	U	U	Yes	
Methylene chloride	5.0	UG/L	10.0	U	U	Yes	
trans-1,2-Dichloroethene	23	UG/L	10.0			Yes	
Methyl tert-butyl ether	5.0	UG/L	10.0	U	U	Yes	
1,1-Dichloroethane	5.0	UG/L	10.0	U	U	Yes	
cis-1,2-Dichloroethene	950	UG/L	10.0	E		Yes	
2-Butanone	50	UG/L	10.0	U	U	Yes	
Bromochloromethane	5.0	UG/L	10.0	U	U	Yes	
Chloroform	5.0	UG/L	10.0	U	U	Yes	
1,1,1-Trichloroethane	5.0	UG/L	10.0	U	U	Yes	
Cyclohexane	5.0	UG/L	10.0	U	U	Yes	
Carbon tetrachloride	5.0	UG/L	10.0	U	U	Yes	
Benzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichloroethane	5.0	UG/L	10.0	U	U	Yes	
Trichloroethene	140	UG/L	10.0			Yes	
Methylcyclohexane	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichloropropane	5.0	UG/L	10.0	U	U	Yes	
Bromodichloromethane	5.0	UG/L	10.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	5.0	UG/L	10.0	U	U	Yes	
4-Methyl-2-pentanone	50	UG/L	10.0	U	U	Yes	
Toluene	5.0	UG/L	10.0	U	U	Yes	
trans-1,3-Dichloropropene	5.0	UG/L	10.0	U	U	Yes	
1,1,2-Trichloroethane	5.0	UG/L	10.0	U	U	Yes	
Tetrachloroethene	5.0	UG/L	10.0	U	U	Yes	
2-Hexanone	50	UG/L	10.0	U	U	Yes	
Dibromochloromethane	5.0	UG/L	10.0	U	U	Yes	
1,2-Dibromoethane	5.0	UG/L	10.0	U	U	Yes	
Chlorobenzene	5.0	UG/L	10.0	U	U	Yes	
Ethylbenzene	5.0	UG/L	10.0	U	U	Yes	
o-Xylene	5.0	UG/L	10.0	U	U	Yes	
m,p-Xylene	5.0	UG/L	10.0	U	U	Yes	
Styrene	5.0	UG/L	10.0	U	U	Yes	
Bromoform	5.0	UG/L	10.0	U	U	Yes	
Isopropylbenzene	5.0	UG/L	10.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	5.0	UG/L	10.0	U	U	Yes	
1,3-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,4-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	5.0	UG/L	10.0	U	U	Yes	
1,2,4-Trichlorobenzene	5.0	UG/L	10.0	U	UJ	Yes	
1,2,3-Trichlorobenzene	5.0	UG/L	10.0	U	UJ	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT4DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-56G	pH:	2	Sample Date:	04/09/2012	Sample Time:	12:45:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	100	UG/L	200.0	U	U	Yes	
Chloromethane	100	UG/L	200.0	U	U	Yes	
Vinyl chloride	100	UG/L	200.0	U	U	Yes	
Bromomethane	100	UG/L	200.0	U	U	Yes	
Chloroethane	100	UG/L	200.0	U	U	Yes	
Trichlorofluorom ethane	100	UG/L	200.0	U	U	Yes	
1,1-Dichloroethene	100	UG/L	200.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	100	UG/L	200.0	U	U	Yes	
Acetone	1000	UG/L	200.0	U	U	Yes	
Carbon disulfide	100	UG/L	200.0	U	U	Yes	
Methyl acetate	100	UG/L	200.0	U	U	Yes	
Methylene chloride	100	UG/L	200.0	DJB	U	Yes	
trans-1,2-Dichloroethene	100	UG/L	200.0	U	U	Yes	
Methyl tert-butyl ether	100	UG/L	200.0	U	U	Yes	
1,1-Dichloroethane	100	UG/L	200.0	U	U	Yes	
cis-1,2-Dichloroethene	860	UG/L	200.0	D		Yes	
2-Butanone	1000	UG/L	200.0	U	U	Yes	
Bromochloromet hane	100	UG/L	200.0	U	U	Yes	
Chloroform	100	UG/L	200.0	U	U	Yes	
1,1,1-Trichloroethane	100	UG/L	200.0	U	U	Yes	
Cyclohexane	100	UG/L	200.0	U	U	Yes	
Carbon tetrachloride	100	UG/L	200.0	U	U	Yes	
Benzene	100	UG/L	200.0	U	U	Yes	
1,2-Dichloroethane	100	UG/L	200.0	U	U	Yes	
Trichloroethene	130	UG/L	200.0	D		Yes	
Methylcyclohexa ne	100	UG/L	200.0	U	U	Yes	
1,2-Dichloropropane	100	UG/L	200.0	U	U	Yes	
Bromodichlorom ethane	100	UG/L	200.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	100	UG/L	200.0	U	U	Yes	
4-Methyl-2-pentanone	1000	UG/L	200.0	U	U	Yes	
Toluene	100	UG/L	200.0	U	U	Yes	
trans-1,3-Dichloropropene	100	UG/L	200.0	U	U	Yes	
1,1,2-Trichloroethane	100	UG/L	200.0	U	U	Yes	
Tetrachloroethene	100	UG/L	200.0	U	U	Yes	
2-Hexanone	1000	UG/L	200.0	U	U	Yes	
Dibromochloromethane	100	UG/L	200.0	U	U	Yes	
1,2-Dibromoethane	100	UG/L	200.0	U	U	Yes	
Chlorobenzene	100	UG/L	200.0	U	U	Yes	
Ethylbenzene	100	UG/L	200.0	U	U	Yes	
o-Xylene	100	UG/L	200.0	U	U	Yes	
m,p-Xylene	100	UG/L	200.0	U	U	Yes	
Styrene	100	UG/L	200.0	U	U	Yes	
Bromoform	100	UG/L	200.0	U	U	Yes	
Isopropylbenzene	100	UG/L	200.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	100	UG/L	200.0	U	U	Yes	
1,3-Dichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,4-Dichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,2-Dichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	100	UG/L	200.0	U	U	Yes	
1,2,4-Trichlorobenzene	100	UG/L	200.0	U	UJ	Yes	
1,2,3-Trichlorobenzene	100	UG/L	200.0	U	UJ	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT5	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-57G	pH:	2	Sample Date:	04/09/2012	Sample Time:	12:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	5.0	UG/L	10.0	U	U	Yes	
Chloromethane	5.0	UG/L	10.0	U	U	Yes	
Vinyl chloride	5.0	UG/L	10.0	U	U	Yes	
Bromomethane	5.0	UG/L	10.0	U	U	Yes	
Chloroethane	5.0	UG/L	10.0	U	U	Yes	
Trichlorofluoromethane	5.0	UG/L	10.0	U	U	Yes	
1,1-Dichloroethene	5.0	UG/L	10.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	UG/L	10.0	U	U	Yes	
Acetone	50	UG/L	10.0	U	U	Yes	
Carbon disulfide	5.0	UG/L	10.0	U	U	Yes	
Methyl acetate	5.0	UG/L	10.0	U	U	Yes	
Methylene chloride	5.0	UG/L	10.0	U	U	Yes	
trans-1,2-Dichloroethene	22	UG/L	10.0			Yes	
Methyl tert-butyl ether	5.0	UG/L	10.0	U	U	Yes	
1,1-Dichloroethane	5.0	UG/L	10.0	U	U	Yes	
cis-1,2-Dichloroethene	940	UG/L	10.0	E		Yes	
2-Butanone	50	UG/L	10.0	U	U	Yes	
Bromochloromethane	5.0	UG/L	10.0	U	U	Yes	
Chloroform	5.0	UG/L	10.0	U	U	Yes	
1,1,1-Trichloroethane	5.0	UG/L	10.0	U	U	Yes	
Cyclohexane	5.0	UG/L	10.0	U	U	Yes	
Carbon tetrachloride	5.0	UG/L	10.0	U	U	Yes	
Benzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichloroethane	5.0	UG/L	10.0	U	U	Yes	
Trichloroethene	150	UG/L	10.0			Yes	
Methylcyclohexane	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichloropropane	5.0	UG/L	10.0	U	U	Yes	
Bromodichloromethane	5.0	UG/L	10.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	5.0	UG/L	10.0	U	U	Yes	
4-Methyl-2-pentanone	50	UG/L	10.0	U	U	Yes	
Toluene	5.0	UG/L	10.0	U	U	Yes	
trans-1,3-Dichloropropene	5.0	UG/L	10.0	U	U	Yes	
1,1,2-Trichloroethane	5.0	UG/L	10.0	U	U	Yes	
Tetrachloroethene	5.0	UG/L	10.0	U	U	Yes	
2-Hexanone	50	UG/L	10.0	U	U	Yes	
Dibromochloromethane	5.0	UG/L	10.0	U	U	Yes	
1,2-Dibromoethane	5.0	UG/L	10.0	U	U	Yes	
Chlorobenzene	5.0	UG/L	10.0	U	U	Yes	
Ethylbenzene	5.0	UG/L	10.0	U	U	Yes	
o-Xylene	5.0	UG/L	10.0	U	U	Yes	
m,p-Xylene	5.0	UG/L	10.0	U	U	Yes	
Styrene	5.0	UG/L	10.0	U	U	Yes	
Bromoform	5.0	UG/L	10.0	U	U	Yes	
Isopropylbenzene	5.0	UG/L	10.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	5.0	UG/L	10.0	U	U	Yes	
1,3-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,4-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	5.0	UG/L	10.0	U	U	Yes	
1,2,4-Trichlorobenzene	5.0	UG/L	10.0	U	UJ	Yes	
1,2,3-Trichlorobenzene	5.0	UG/L	10.0	U	UJ	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT5DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-57G	pH:	2	Sample Date:	04/09/2012	Sample Time:	12:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	100	UG/L	200.0	U	U	Yes	
Chloromethane	100	UG/L	200.0	U	U	Yes	
Vinyl chloride	100	UG/L	200.0	U	U	Yes	
Bromomethane	100	UG/L	200.0	U	U	Yes	
Chloroethane	100	UG/L	200.0	U	U	Yes	
Trichlorofluoromethane	100	UG/L	200.0	U	U	Yes	
1,1-Dichloroethene	100	UG/L	200.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	100	UG/L	200.0	U	U	Yes	
Acetone	1000	UG/L	200.0	U	U	Yes	
Carbon disulfide	100	UG/L	200.0	U	U	Yes	
Methyl acetate	100	UG/L	200.0	U	U	Yes	
Methylene chloride	100	UG/L	200.0	U	U	Yes	
trans-1,2-Dichloroethene	100	UG/L	200.0	U	U	Yes	
Methyl tert-butyl ether	100	UG/L	200.0	U	U	Yes	
1,1-Dichloroethane	100	UG/L	200.0	U	U	Yes	
cis-1,2-Dichloroethene	830	UG/L	200.0	D		Yes	
2-Butanone	1000	UG/L	200.0	U	U	Yes	
Bromochloromethane	100	UG/L	200.0	U	U	Yes	
Chloroform	100	UG/L	200.0	U	U	Yes	
1,1,1-Trichloroethane	100	UG/L	200.0	U	U	Yes	
Cyclohexane	100	UG/L	200.0	U	U	Yes	
Carbon tetrachloride	100	UG/L	200.0	U	U	Yes	
Benzene	100	UG/L	200.0	U	U	Yes	
1,2-Dichloroethane	100	UG/L	200.0	U	U	Yes	
Trichloroethene	120	UG/L	200.0	D		Yes	
Methylcyclohexane	100	UG/L	200.0	U	U	Yes	
1,2-Dichloropropane	100	UG/L	200.0	U	U	Yes	
Bromodichloromethane	100	UG/L	200.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	100	UG/L	200.0	U	U	Yes	
4-Methyl-2-pentanone	1000	UG/L	200.0	U	U	Yes	
Toluene	100	UG/L	200.0	U	U	Yes	
trans-1,3-Dichloropropene	100	UG/L	200.0	U	U	Yes	
1,1,2-Trichloroethane	100	UG/L	200.0	U	U	Yes	
Tetrachloroethene	100	UG/L	200.0	U	U	Yes	
2-Hexanone	1000	UG/L	200.0	U	U	Yes	
Dibromochloromethane	100	UG/L	200.0	U	U	Yes	
1,2-Dibromoethane	100	UG/L	200.0	U	U	Yes	
Chlorobenzene	100	UG/L	200.0	U	U	Yes	
Ethylbenzene	100	UG/L	200.0	U	U	Yes	
o-Xylene	100	UG/L	200.0	U	U	Yes	
m,p-Xylene	100	UG/L	200.0	U	U	Yes	
Styrene	100	UG/L	200.0	U	U	Yes	
Bromoform	100	UG/L	200.0	U	U	Yes	
Isopropylbenzene	100	UG/L	200.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	100	UG/L	200.0	U	U	Yes	
1,3-Dichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,4-Dichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,2-Dichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	100	UG/L	200.0	U	U	Yes	
1,2,4-Trichlorobenzene	100	UG/L	200.0	U	UJ	Yes	
1,2,3-Trichlorobenzene	100	UG/L	200.0	U	UJ	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP
Sample Number:	Y8AT6	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-11G	pH:	7.9	Sample Date:	04/03/2012	Sample Time:	14:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT6	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-11G	pH:	2	Sample Date:	04/03/2012	Sample Time:	14:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.97	UG/L	1.0			Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	4.3	UG/L	1.0			Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	46	UG/L	1.0	E		Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP
Sample Number:	Y8AT6DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-11G	pH:	2	Sample Date:	04/03/2012	Sample Time:	14:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	5.0	UG/L	10.0	U	U	Yes	
Chloromethane	5.0	UG/L	10.0	U	U	Yes	
Vinyl chloride	5.0	UG/L	10.0	U	U	Yes	
Bromomethane	5.0	UG/L	10.0	U	U	Yes	
Chloroethane	5.0	UG/L	10.0	U	U	Yes	
Trichlorofluoromethane	5.0	UG/L	10.0	U	U	Yes	
1,1-Dichloroethene	5.0	UG/L	10.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	UG/L	10.0	U	U	Yes	
Acetone	50	UG/L	10.0	U	U	Yes	
Carbon disulfide	5.0	UG/L	10.0	U	U	Yes	
Methyl acetate	5.0	UG/L	10.0	U	U	Yes	
Methylene chloride	5.0	UG/L	10.0	U	U	Yes	
trans-1,2-Dichloroethene	5.0	UG/L	10.0	U	U	Yes	
Methyl tert-butyl ether	5.0	UG/L	10.0	U	U	Yes	
1,1-Dichloroethane	5.0	UG/L	10.0	U	U	Yes	
cis-1,2-Dichloroethene	4.9	UG/L	10.0	DJ	J	Yes	
2-Butanone	50	UG/L	10.0	U	U	Yes	
Bromochloromethane	5.0	UG/L	10.0	U	U	Yes	
Chloroform	5.0	UG/L	10.0	U	U	Yes	
1,1,1-Trichloroethane	5.0	UG/L	10.0	U	U	Yes	
Cyclohexane	5.0	UG/L	10.0	U	U	Yes	
Carbon tetrachloride	5.0	UG/L	10.0	U	U	Yes	
Benzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichloroethane	5.0	UG/L	10.0	U	U	Yes	
Trichloroethene	30	UG/L	10.0	D		Yes	
Methylcyclohexane	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichloropropane	5.0	UG/L	10.0	U	U	Yes	
Bromodichloromethane	5.0	UG/L	10.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	5.0	UG/L	10.0	U	U	Yes	
4-Methyl-2-pentanone	50	UG/L	10.0	U	U	Yes	
Toluene	5.0	UG/L	10.0	U	U	Yes	
trans-1,3-Dichloropropene	5.0	UG/L	10.0	U	U	Yes	
1,1,2-Trichloroethane	5.0	UG/L	10.0	U	U	Yes	
Tetrachloroethene	5.0	UG/L	10.0	U	U	Yes	
2-Hexanone	50	UG/L	10.0	U	U	Yes	
Dibromochloromethane	5.0	UG/L	10.0	U	U	Yes	
1,2-Dibromoethane	5.0	UG/L	10.0	U	U	Yes	
Chlorobenzene	5.0	UG/L	10.0	U	U	Yes	
Ethylbenzene	5.0	UG/L	10.0	U	U	Yes	
o-Xylene	5.0	UG/L	10.0	U	U	Yes	
m,p-Xylene	5.0	UG/L	10.0	U	U	Yes	
Styrene	5.0	UG/L	10.0	U	U	Yes	
Bromoform	5.0	UG/L	10.0	U	U	Yes	
Isopropylbenzene	5.0	UG/L	10.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	5.0	UG/L	10.0	U	U	Yes	
1,3-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,4-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	5.0	UG/L	10.0	U	U	Yes	
1,2,4-Trichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2,3-Trichlorobenzene	5.0	UG/L	10.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP
Sample Number:	Y8AT7	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-FB-001	pH:	2	Sample Date:	04/03/2012	Sample Time:	15:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.31	UG/L	1.0	J	J	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AT6	Lab Code:	KAP

Sample Number:	Y8AT8	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-FB-002	pH:	2	Sample Date:	04/04/2012	Sample Time:	15:40:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	B	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Sample Summary Report

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	SBLK39	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	VBLK1X	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.1	UG/L	1.0			Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.37	UG/L	1.0	J	J	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.44	UG/L	1.0	J	J	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.33	UG/L	1.0	J	J	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	VBLK2A	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.48	UG/L	1.0	J	J	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.34	UG/L	1.0	J	J	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	VBLK2C	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	UJ	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	6.2	UG/L	1.0			Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.27	UG/L	1.0	J	J	Yes	

Case No: 42404	Contract: EPW11031	SDG No: Y8AQ5	Lab Code: KAP

Sample Number: VBLK2E	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.8	UG/L	1.0			Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.16	UG/L	1.0	J	J	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.28	UG/L	1.0	J	J	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.31	UG/L	1.0	J	J	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	VBLK3J	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	UJ	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	VHBLK01	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.19	UG/L	1.0	J	J	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	UJ	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AQ5	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-EB-001	pH:	2	Sample Date:	04/03/2012	Sample Time:	15:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	6.1	UG/L	1.0			Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	JB	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.24	UG/L	1.0	J	J	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Cyclotetrasiloxane, octamethyl-			1.0	NJ		Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AQ6	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-EB-002	pH:	2	Sample Date:	04/04/2012	Sample Time:	15:45:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	JB	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR0	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-01P	pH:	2	Sample Date:	04/02/2012	Sample Time:	15:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	12	UG/L	1.0	B		Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	JB	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.35	UG/L	1.0	J	J	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	3.7	UG/L	1.0			Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	3.1	UG/L	1.0			Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Octanal			1.0	NJ		Yes	
Nonanal			1.0	NJ		Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AR1	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-01G	pH:	7.6	Sample Date:	04/02/2012	Sample Time:	16:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AR1	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-01G	pH:	2	Sample Date:	04/02/2012	Sample Time:	16:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	JB	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR3	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-02G	pH:	7.6	Sample Date:	04/02/2012	Sample Time:	13:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AR3	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-02G	pH:	2	Sample Date:	04/02/2012	Sample Time:	13:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	B	U	Yes	
trans-1,2-Dichloroethene	7.4	UG/L	1.0			Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	29	UG/L	1.0	E		Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	1.8	UG/L	1.0			Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	3.7	UG/L	1.0			Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	8.1	UG/L	1.0			Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Diisopropyl ether			1.0	NJ		Yes	
Butane, 1-ethoxy-			1.0	NJ		Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR3DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-02G	pH:	2	Sample Date:	04/02/2012	Sample Time:	13:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	2.5	UG/L	5.0	U	U	Yes	
Chloromethane	2.5	UG/L	5.0	U	U	Yes	
Vinyl chloride	2.5	UG/L	5.0	U	U	Yes	
Bromomethane	2.5	UG/L	5.0	U	U	Yes	
Chloroethane	2.5	UG/L	5.0	U	U	Yes	
Trichlorofluoromethane	2.5	UG/L	5.0	U	U	Yes	
1,1-Dichloroethene	2.5	UG/L	5.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.5	UG/L	5.0	U	U	Yes	
Acetone	25	UG/L	5.0	U	U	Yes	
Carbon disulfide	2.5	UG/L	5.0	U	U	Yes	
Methyl acetate	2.5	UG/L	5.0	U	U	Yes	
Methylene chloride	2.5	UG/L	5.0	U	U	Yes	
trans-1,2-Dichloroethene	6.1	UG/L	5.0	D		Yes	
Methyl tert-butyl ether	2.5	UG/L	5.0	U	U	Yes	
1,1-Dichloroethane	2.5	UG/L	5.0	U	U	Yes	
cis-1,2-Dichloroethene	21	UG/L	5.0	D		Yes	
2-Butanone	25	UG/L	5.0	U	U	Yes	
Bromochloromethane	2.5	UG/L	5.0	U	U	Yes	
Chloroform	2.5	UG/L	5.0	U	U	Yes	
1,1,1-Trichloroethane	2.5	UG/L	5.0	U	U	Yes	
Cyclohexane	2.5	UG/L	5.0	U	U	Yes	
Carbon tetrachloride	2.5	UG/L	5.0	U	U	Yes	
Benzene	2.5	UG/L	5.0	U	U	Yes	
1,2-Dichloroethane	2.5	UG/L	5.0	U	U	Yes	
Trichloroethene	5.8	UG/L	5.0	D		Yes	
Methylcyclohexane	2.5	UG/L	5.0	U	U	Yes	
1,2-Dichloropropane	2.5	UG/L	5.0	U	U	Yes	
Bromodichloromethane	2.5	UG/L	5.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	2.5	UG/L	5.0	U	U	Yes	
4-Methyl-2-pentanone	25	UG/L	5.0	U	U	Yes	
Toluene	2.5	UG/L	5.0	U	U	Yes	
trans-1,3-Dichloropropene	2.5	UG/L	5.0	U	U	Yes	
1,1,2-Trichloroethane	2.5	UG/L	5.0	U	U	Yes	
Tetrachloroethene	2.5	UG/L	5.0	U	U	Yes	
2-Hexanone	25	UG/L	5.0	U	U	Yes	
Dibromochloromethane	2.5	UG/L	5.0	U	U	Yes	
1,2-Dibromoethane	2.5	UG/L	5.0	U	U	Yes	
Chlorobenzene	2.5	UG/L	5.0	U	U	Yes	
Ethylbenzene	2.5	UG/L	5.0	U	U	Yes	
o-Xylene	2.5	UG/L	5.0	U	U	Yes	
m,p-Xylene	2.5	UG/L	5.0	U	U	Yes	
Styrene	2.5	UG/L	5.0	U	U	Yes	
Bromoform	2.5	UG/L	5.0	U	U	Yes	
Isopropylbenzene	2.5	UG/L	5.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	2.5	UG/L	5.0	U	U	Yes	
1,3-Dichlorobenzene	2.5	UG/L	5.0	U	U	Yes	
1,4-Dichlorobenzene	2.5	UG/L	5.0	U	U	Yes	
1,2-Dichlorobenzene	2.5	UG/L	5.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	2.5	UG/L	5.0	U	U	Yes	
1,2,4-Trichlorobenzene	2.5	UG/L	5.0	U	U	Yes	
1,2,3-Trichlorobenzene	2.5	UG/L	5.0	U	U	Yes	
Butane, 1-ethoxy-			5.0	DNJ		Yes	
Methane, diethoxy-			5.0	DNJ		Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AR4	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-03P	pH:	7.4	Sample Date:	04/04/2012	Sample Time:	14:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR4	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-03P	pH:	2	Sample Date:	04/04/2012	Sample Time:	14:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	JB	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	11	UG/L	1.0			Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR5	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-03G	pH:	7.9	Sample Date:	04/04/2012	Sample Time:	15:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AR5	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-03G	pH:	2	Sample Date:	04/04/2012	Sample Time:	15:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	JB	U	Yes	
trans-1,2-Dichloroethene	0.95	UG/L	1.0			Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	13	UG/L	1.0			Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	80	UG/L	1.0	E		Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AR5DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-03G	pH:	2	Sample Date:	04/04/2012	Sample Time:	15:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	10	UG/L	20.0	U	U	Yes	
Chloromethane	10	UG/L	20.0	U	U	Yes	
Vinyl chloride	10	UG/L	20.0	U	U	Yes	
Bromomethane	10	UG/L	20.0	U	U	Yes	
Chloroethane	10	UG/L	20.0	U	U	Yes	
Trichlorofluoromethane	10	UG/L	20.0	U	U	Yes	
1,1-Dichloroethene	10	UG/L	20.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	UG/L	20.0	U	U	Yes	
Acetone	100	UG/L	20.0	U	U	Yes	
Carbon disulfide	10	UG/L	20.0	U	U	Yes	
Methyl acetate	10	UG/L	20.0	U	U	Yes	
Methylene chloride	10	UG/L	20.0	U	U	Yes	
trans-1,2-Dichloroethene	10	UG/L	20.0	U	U	Yes	
Methyl tert-butyl ether	10	UG/L	20.0	U	U	Yes	
1,1-Dichloroethane	10	UG/L	20.0	U	U	Yes	
cis-1,2-Dichloroethene	19	UG/L	20.0	D		Yes	
2-Butanone	100	UG/L	20.0	U	U	Yes	
Bromochloromethane	10	UG/L	20.0	U	U	Yes	
Chloroform	10	UG/L	20.0	U	U	Yes	
1,1,1-Trichloroethane	10	UG/L	20.0	U	U	Yes	
Cyclohexane	10	UG/L	20.0	U	U	Yes	
Carbon tetrachloride	10	UG/L	20.0	U	U	Yes	
Benzene	10	UG/L	20.0	U	U	Yes	
1,2-Dichloroethane	10	UG/L	20.0	U	U	Yes	
Trichloroethene	92	UG/L	20.0	D		Yes	
Methylcyclohexane	10	UG/L	20.0	U	U	Yes	
1,2-Dichloropropane	10	UG/L	20.0	U	U	Yes	
Bromodichloromethane	10	UG/L	20.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	10	UG/L	20.0	U	U	Yes	
4-Methyl-2-pentanone	100	UG/L	20.0	U	U	Yes	
Toluene	10	UG/L	20.0	U	U	Yes	
trans-1,3-Dichloropropene	10	UG/L	20.0	U	U	Yes	
1,1,2-Trichloroethane	10	UG/L	20.0	U	U	Yes	
Tetrachloroethene	10	UG/L	20.0	U	U	Yes	
2-Hexanone	100	UG/L	20.0	U	U	Yes	
Dibromochloromethane	10	UG/L	20.0	U	U	Yes	
1,2-Dibromoethane	10	UG/L	20.0	U	U	Yes	
Chlorobenzene	10	UG/L	20.0	U	U	Yes	
Ethylbenzene	10	UG/L	20.0	U	U	Yes	
o-Xylene	10	UG/L	20.0	U	U	Yes	
m,p-Xylene	10	UG/L	20.0	U	U	Yes	
Styrene	10	UG/L	20.0	U	U	Yes	
Bromoform	10	UG/L	20.0	U	U	Yes	
Isopropylbenzene	10	UG/L	20.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	10	UG/L	20.0	U	U	Yes	
1,3-Dichlorobenzene	10	UG/L	20.0	U	U	Yes	
1,4-Dichlorobenzene	10	UG/L	20.0	U	U	Yes	
1,2-Dichlorobenzene	10	UG/L	20.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	10	UG/L	20.0	U	U	Yes	
1,2,4-Trichlorobenzene	10	UG/L	20.0	U	U	Yes	
1,2,3-Trichlorobenzene	10	UG/L	20.0	U	U	Yes	

Case No: 42404	Contract: EPW11031	SDG No: Y8AQ5	Lab Code: KAP

Sample Number:	Y8AR6	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-04P	pH:	7.6	Sample Date:	04/04/2012	Sample Time:	11:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AR6	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-04P	pH:	2	Sample Date:	04/04/2012	Sample Time:	11:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	4.0	UG/L	8.0	U	U	Yes	
Chloromethane	4.0	UG/L	8.0	U	U	Yes	
Vinyl chloride	4.0	UG/L	8.0	U	U	Yes	
Bromomethane	4.0	UG/L	8.0	U	U	Yes	
Chloroethane	4.0	UG/L	8.0	U	U	Yes	
Trichlorofluoromethane	4.0	UG/L	8.0	U	U	Yes	
1,1-Dichloroethene	4.0	UG/L	8.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	4.0	UG/L	8.0	U	U	Yes	
Acetone	40	UG/L	8.0	U	U	Yes	
Carbon disulfide	4.0	UG/L	8.0	U	U	Yes	
Methyl acetate	4.0	UG/L	8.0	U	U	Yes	
Methylene chloride	4.0	UG/L	8.0	U	U	Yes	
trans-1,2-Dichloroethene	4.0	UG/L	8.0	U	U	Yes	
Methyl tert-butyl ether	4.0	UG/L	8.0	U	U	Yes	
1,1-Dichloroethane	4.0	UG/L	8.0	U	U	Yes	
cis-1,2-Dichloroethene	5.3	UG/L	8.0			Yes	
2-Butanone	40	UG/L	8.0	U	U	Yes	
Bromochloromethane	4.0	UG/L	8.0	U	U	Yes	
Chloroform	4.0	UG/L	8.0	U	U	Yes	
1,1,1-Trichloroethane	4.0	UG/L	8.0	U	U	Yes	
Cyclohexane	4.0	UG/L	8.0	U	U	Yes	
Carbon tetrachloride	4.0	UG/L	8.0	U	U	Yes	
Benzene	4.0	UG/L	8.0	U	U	Yes	
1,2-Dichloroethane	4.0	UG/L	8.0	U	U	Yes	
Trichloroethene	570	UG/L	8.0	E		Yes	
Methylcyclohexane	4.0	UG/L	8.0	U	U	Yes	
1,2-Dichloropropane	4.0	UG/L	8.0	U	U	Yes	
Bromodichloromethane	4.0	UG/L	8.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	4.0	UG/L	8.0	U	U	Yes	
4-Methyl-2-pentanone	40	UG/L	8.0	U	U	Yes	
Toluene	4.0	UG/L	8.0	U	U	Yes	
trans-1,3-Dichloropropene	4.0	UG/L	8.0	U	U	Yes	
1,1,2-Trichloroethane	4.0	UG/L	8.0	U	U	Yes	
Tetrachloroethene	1.8	UG/L	8.0	J	J	Yes	
2-Hexanone	40	UG/L	8.0	U	U	Yes	
Dibromochloromethane	4.0	UG/L	8.0	U	U	Yes	
1,2-Dibromoethane	4.0	UG/L	8.0	U	U	Yes	
Chlorobenzene	4.0	UG/L	8.0	U	U	Yes	
Ethylbenzene	4.0	UG/L	8.0	U	U	Yes	
o-Xylene	4.0	UG/L	8.0	U	U	Yes	
m,p-Xylene	4.0	UG/L	8.0	U	U	Yes	
Styrene	4.0	UG/L	8.0	U	U	Yes	
Bromoform	4.0	UG/L	8.0	U	U	Yes	
Isopropylbenzene	4.0	UG/L	8.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	4.0	UG/L	8.0	U	U	Yes	
1,3-Dichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,4-Dichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,2-Dichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	4.0	UG/L	8.0	U	U	Yes	
1,2,4-Trichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,2,3-Trichlorobenzene	4.0	UG/L	8.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AR6DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-04P	pH:	2	Sample Date:	04/04/2012	Sample Time:	11:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	50	UG/L	100.0	U	U	Yes	
Chloromethane	50	UG/L	100.0	U	U	Yes	
Vinyl chloride	50	UG/L	100.0	U	U	Yes	
Bromomethane	50	UG/L	100.0	U	U	Yes	
Chloroethane	50	UG/L	100.0	U	U	Yes	
Trichlorofluoromethane	50	UG/L	100.0	U	U	Yes	
1,1-Dichloroethene	50	UG/L	100.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	50	UG/L	100.0	U	U	Yes	
Acetone	500	UG/L	100.0	U	U	Yes	
Carbon disulfide	50	UG/L	100.0	U	U	Yes	
Methyl acetate	50	UG/L	100.0	U	U	Yes	
Methylene chloride	50	UG/L	100.0	U	U	Yes	
trans-1,2-Dichloroethene	50	UG/L	100.0	U	U	Yes	
Methyl tert-butyl ether	50	UG/L	100.0	U	U	Yes	
1,1-Dichloroethane	50	UG/L	100.0	U	U	Yes	
cis-1,2-Dichloroethene	50	UG/L	100.0	U	U	Yes	
2-Butanone	500	UG/L	100.0	U	U	Yes	
Bromochloromethane	50	UG/L	100.0	U	U	Yes	
Chloroform	50	UG/L	100.0	U	U	Yes	
1,1,1-Trichloroethane	50	UG/L	100.0	U	U	Yes	
Cyclohexane	50	UG/L	100.0	U	U	Yes	
Carbon tetrachloride	50	UG/L	100.0	U	U	Yes	
Benzene	50	UG/L	100.0	U	U	Yes	
1,2-Dichloroethane	50	UG/L	100.0	U	U	Yes	
Trichloroethene	490	UG/L	100.0	D		Yes	
Methylcyclohexane	50	UG/L	100.0	U	U	Yes	
1,2-Dichloropropane	50	UG/L	100.0	U	U	Yes	
Bromodichloromethane	50	UG/L	100.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	50	UG/L	100.0	U	U	Yes	
4-Methyl-2-pentanone	500	UG/L	100.0	U	U	Yes	
Toluene	50	UG/L	100.0	U	U	Yes	
trans-1,3-Dichloropropene	50	UG/L	100.0	U	U	Yes	
1,1,2-Trichloroethane	50	UG/L	100.0	U	U	Yes	
Tetrachloroethene	50	UG/L	100.0	U	U	Yes	
2-Hexanone	500	UG/L	100.0	U	U	Yes	
Dibromochloromethane	50	UG/L	100.0	U	U	Yes	
1,2-Dibromoethane	50	UG/L	100.0	U	U	Yes	
Chlorobenzene	50	UG/L	100.0	U	U	Yes	
Ethylbenzene	50	UG/L	100.0	U	U	Yes	
o-Xylene	50	UG/L	100.0	U	U	Yes	
m,p-Xylene	50	UG/L	100.0	U	U	Yes	
Styrene	50	UG/L	100.0	U	U	Yes	
Bromoform	50	UG/L	100.0	U	U	Yes	
Isopropylbenzene	50	UG/L	100.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	50	UG/L	100.0	U	U	Yes	
1,3-Dichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,4-Dichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,2-Dichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	50	UG/L	100.0	U	U	Yes	
1,2,4-Trichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,2,3-Trichlorobenzene	50	UG/L	100.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR7	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-04G	pH:	7.7	Sample Date:	04/04/2012	Sample Time:	12:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR7	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-04G	pH:	2	Sample Date:	04/04/2012	Sample Time:	12:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	4.0	UG/L	8.0	U	U	Yes	
Chloromethane	4.0	UG/L	8.0	U	U	Yes	
Vinyl chloride	4.0	UG/L	8.0	U	U	Yes	
Bromomethane	4.0	UG/L	8.0	U	U	Yes	
Chloroethane	4.0	UG/L	8.0	U	U	Yes	
Trichlorofluorom ethane	4.0	UG/L	8.0	U	U	Yes	
1,1-Dichloroethene	4.0	UG/L	8.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	4.0	UG/L	8.0	U	U	Yes	
Acetone	40	UG/L	8.0	U	U	Yes	
Carbon disulfide	4.0	UG/L	8.0	U	U	Yes	
Methyl acetate	4.0	UG/L	8.0	U	U	Yes	
Methylene chloride	4.0	UG/L	8.0	U	U	Yes	
trans-1,2-Dichloroethene	14	UG/L	8.0			Yes	
Methyl tert-butyl ether	4.0	UG/L	8.0	U	U	Yes	
1,1-Dichloroethane	4.0	UG/L	8.0	U	U	Yes	
cis-1,2-Dichloroethene	170	UG/L	8.0	E		Yes	
2-Butanone	40	UG/L	8.0	U	U	Yes	
Bromochloromet hane	4.0	UG/L	8.0	U	U	Yes	
Chloroform	4.0	UG/L	8.0	U	U	Yes	
1,1,1-Trichloroethane	4.0	UG/L	8.0	U	U	Yes	
Cyclohexane	4.0	UG/L	8.0	U	U	Yes	
Carbon tetrachloride	4.0	UG/L	8.0	U	U	Yes	
Benzene	4.0	UG/L	8.0	U	U	Yes	
1,2-Dichloroethane	4.0	UG/L	8.0	U	U	Yes	
Trichloroethene	640	UG/L	8.0	E		Yes	
Methylcyclohexa ne	4.0	UG/L	8.0	U	U	Yes	
1,2-Dichloropropane	4.0	UG/L	8.0	U	U	Yes	
Bromodichlorom ethane	4.0	UG/L	8.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	4.0	UG/L	8.0	U	U	Yes	
4-Methyl-2-pentanone	40	UG/L	8.0	U	U	Yes	
Toluene	4.0	UG/L	8.0	U	U	Yes	
trans-1,3-Dichloropropene	4.0	UG/L	8.0	U	U	Yes	
1,1,2-Trichloroethane	4.0	UG/L	8.0	U	U	Yes	
Tetrachloroethene	4.0	UG/L	8.0	U	U	Yes	
2-Hexanone	40	UG/L	8.0	U	U	Yes	
Dibromochloromethane	4.0	UG/L	8.0	U	U	Yes	
1,2-Dibromoethane	4.0	UG/L	8.0	U	U	Yes	
Chlorobenzene	4.0	UG/L	8.0	U	U	Yes	
Ethylbenzene	4.0	UG/L	8.0	U	U	Yes	
o-Xylene	4.0	UG/L	8.0	U	U	Yes	
m,p-Xylene	4.0	UG/L	8.0	U	U	Yes	
Styrene	4.0	UG/L	8.0	U	U	Yes	
Bromoform	4.0	UG/L	8.0	U	U	Yes	
Isopropylbenzene	4.0	UG/L	8.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	4.0	UG/L	8.0	U	U	Yes	
1,3-Dichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,4-Dichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,2-Dichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	4.0	UG/L	8.0	U	U	Yes	
1,2,4-Trichlorobenzene	4.0	UG/L	8.0	U	U	Yes	
1,2,3-Trichlorobenzene	4.0	UG/L	8.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR7DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-04G	pH:	2	Sample Date:	04/04/2012	Sample Time:	12:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	50	UG/L	100.0	U	U	Yes	
Chloromethane	50	UG/L	100.0	U	U	Yes	
Vinyl chloride	50	UG/L	100.0	U	U	Yes	
Bromomethane	50	UG/L	100.0	U	U	Yes	
Chloroethane	50	UG/L	100.0	U	U	Yes	
Trichlorofluoromethane	50	UG/L	100.0	U	U	Yes	
1,1-Dichloroethene	50	UG/L	100.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	50	UG/L	100.0	U	U	Yes	
Acetone	500	UG/L	100.0	U	U	Yes	
Carbon disulfide	50	UG/L	100.0	U	U	Yes	
Methyl acetate	50	UG/L	100.0	U	U	Yes	
Methylene chloride	50	UG/L	100.0	U	U	Yes	
trans-1,2-Dichloroethene	50	UG/L	100.0	U	U	Yes	
Methyl tert-butyl ether	50	UG/L	100.0	U	U	Yes	
1,1-Dichloroethane	50	UG/L	100.0	U	U	Yes	
cis-1,2-Dichloroethene	160	UG/L	100.0	D		Yes	
2-Butanone	500	UG/L	100.0	U	U	Yes	
Bromochloromethane	50	UG/L	100.0	U	U	Yes	
Chloroform	50	UG/L	100.0	U	U	Yes	
1,1,1-Trichloroethane	50	UG/L	100.0	U	U	Yes	
Cyclohexane	50	UG/L	100.0	U	U	Yes	
Carbon tetrachloride	50	UG/L	100.0	U	U	Yes	
Benzene	50	UG/L	100.0	U	U	Yes	
1,2-Dichloroethane	50	UG/L	100.0	U	U	Yes	
Trichloroethene	520	UG/L	100.0	D		Yes	
Methylcyclohexane	50	UG/L	100.0	U	U	Yes	
1,2-Dichloropropane	50	UG/L	100.0	U	U	Yes	
Bromodichloromethane	50	UG/L	100.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	50	UG/L	100.0	U	U	Yes	
4-Methyl-2-pentanone	500	UG/L	100.0	U	U	Yes	
Toluene	50	UG/L	100.0	U	U	Yes	
trans-1,3-Dichloropropene	50	UG/L	100.0	U	U	Yes	
1,1,2-Trichloroethane	50	UG/L	100.0	U	U	Yes	
Tetrachloroethene	50	UG/L	100.0	U	U	Yes	
2-Hexanone	500	UG/L	100.0	U	U	Yes	
Dibromochloromethane	50	UG/L	100.0	U	U	Yes	
1,2-Dibromoethane	50	UG/L	100.0	U	U	Yes	
Chlorobenzene	50	UG/L	100.0	U	U	Yes	
Ethylbenzene	50	UG/L	100.0	U	U	Yes	
o-Xylene	50	UG/L	100.0	U	U	Yes	
m,p-Xylene	50	UG/L	100.0	U	U	Yes	
Styrene	50	UG/L	100.0	U	U	Yes	
Bromoform	50	UG/L	100.0	U	U	Yes	
Isopropylbenzene	50	UG/L	100.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	50	UG/L	100.0	U	U	Yes	
1,3-Dichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,4-Dichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,2-Dichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	50	UG/L	100.0	U	U	Yes	
1,2,4-Trichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,2,3-Trichlorobenzene	50	UG/L	100.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR8	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-05P	pH:	2	Sample Date:	04/02/2012	Sample Time:	10:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	B	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.41	UG/L	1.0	J	J	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AR8	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-05P	pH:	7.9	Sample Date:	04/02/2012	Sample Time:	10:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AR9	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-05G	pH:	2	Sample Date:	04/02/2012	Sample Time:	10:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No: 42404	Contract: EPW11031	SDG No: Y8AQ5	Lab Code: KAP

Sample Number:	Y8AR9	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-05G	pH:	7.7	Sample Date:	04/02/2012	Sample Time:	10:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS0	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-06P	pH:	7.7	Sample Date:	04/04/2012	Sample Time:	09:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS0	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-06P	pH:	2	Sample Date:	04/04/2012	Sample Time:	09:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.25	UG/L	1.0	J	J	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.68	UG/L	1.0			Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	6.6	UG/L	1.0			Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.19	UG/L	1.0	J	J	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Nonanal			1.0	NJ		Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS1	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-06G	pH:	7.7	Sample Date:	04/04/2012	Sample Time:	09:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No: 42404	Contract: EPW11031	SDG No: Y8AQ5	Lab Code: KAP

Sample Number:	Y8AS1	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-06G	pH:	2	Sample Date:	04/04/2012	Sample Time:	09:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	2.0	UG/L	1.0	J	J	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS2	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-07P	pH:	2	Sample Date:	04/03/2012	Sample Time:	11:45:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	UJ	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	JB	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	J	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.15	UG/L	1.0	J	J	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS2	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-07P	pH:	7.7	Sample Date:	04/03/2012	Sample Time:	11:45:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS3	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-07G	pH:	7.8	Sample Date:	04/03/2012	Sample Time:	12:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS3	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-07G	pH:	2	Sample Date:	04/03/2012	Sample Time:	12:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS3MS	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-07G	pH:	2	Sample Date:	04/03/2012	Sample Time:	12:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	4.5	UG/L	1.0			Yes	
Benzene	5.5	UG/L	1.0			Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	5.8	UG/L	1.0			Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Toluene	8.6	UG/L	1.0		J	Yes	
Bromomethane	0.50	UG/L	1.0	U	UJ	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	9.7	UG/L	1.0		J	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	JB	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	J	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS3MSD	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-07G	pH:	2	Sample Date:	04/03/2012	Sample Time:	12:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	4.4	UG/L	1.0			Yes	
Benzene	5.6	UG/L	1.0			Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	6.0	UG/L	1.0		J	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Toluene	8.6	UG/L	1.0		J	Yes	
Bromomethane	0.50	UG/L	1.0	U	UJ	Yes	
Chlorobenzene	9.7	UG/L	1.0		J	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	JB	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	J	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS4	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-08P	pH:	2	Sample Date:	04/03/2012	Sample Time:	13:55:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS4	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-08P	pH:	7.9	Sample Date:	04/03/2012	Sample Time:	13:55:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS4RE	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-08P	pH:	2	Sample Date:	04/03/2012	Sample Time:	13:55:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	R	Yes	
Chloromethane	0.50	UG/L	1.0	U	R	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	R	Yes	
Bromomethane	0.50	UG/L	1.0	U	R	Yes	
Chloroethane	0.50	UG/L	1.0	U	R	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	R	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	R	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	R	Yes	
Acetone	5.0	UG/L	1.0	U	R	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	R	Yes	
Methyl acetate	0.50	UG/L	1.0	U	R	Yes	
Methylene chloride	0.50	UG/L	1.0	J	UJ	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	R	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	R	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	R	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	R	Yes	
2-Butanone	5.0	UG/L	1.0	U	R	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	R	Yes	
Chloroform	0.50	UG/L	1.0	U	R	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	R	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	R	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	R	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	R	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	R	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	R	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	R	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	R	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS5	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-08G	pH:	7.6	Sample Date:	04/03/2012	Sample Time:	14:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS5	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-08G	pH:	2	Sample Date:	04/03/2012	Sample Time:	14:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	UG/L	1.0	U	UJ	Yes	
Chloromethane	0.50	UG/L	1.0	U	UJ	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	UJ	Yes	
Chloroethane	0.50	UG/L	1.0	U	UJ	Yes	
Trichlorofluorom ethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	UJ	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.91	UG/L	1.0			Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	4.3	UG/L	1.0			Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	39	UG/L	1.0	E		Yes	
Methylcyclohexa ne	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS5DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-08G	pH:	2	Sample Date:	04/03/2012	Sample Time:	14:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	5.0	UG/L	10.0	U	U	Yes	
Chloromethane	5.0	UG/L	10.0	U	U	Yes	
Vinyl chloride	5.0	UG/L	10.0	U	U	Yes	
Bromomethane	5.0	UG/L	10.0	U	U	Yes	
Chloroethane	5.0	UG/L	10.0	U	U	Yes	
Trichlorofluoromethane	5.0	UG/L	10.0	U	U	Yes	
1,1-Dichloroethene	5.0	UG/L	10.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	UG/L	10.0	U	U	Yes	
Acetone	50	UG/L	10.0	U	U	Yes	
Carbon disulfide	5.0	UG/L	10.0	U	U	Yes	
Methyl acetate	5.0	UG/L	10.0	U	U	Yes	
Methylene chloride	5.0	UG/L	10.0	U	U	Yes	
trans-1,2-Dichloroethene	5.0	UG/L	10.0	U	U	Yes	
Methyl tert-butyl ether	5.0	UG/L	10.0	U	U	Yes	
1,1-Dichloroethane	5.0	UG/L	10.0	U	U	Yes	
cis-1,2-Dichloroethene	6.1	UG/L	10.0	D		Yes	
2-Butanone	50	UG/L	10.0	U	U	Yes	
Bromochloromethane	5.0	UG/L	10.0	U	U	Yes	
Chloroform	5.0	UG/L	10.0	U	U	Yes	
1,1,1-Trichloroethane	5.0	UG/L	10.0	U	U	Yes	
Cyclohexane	5.0	UG/L	10.0	U	U	Yes	
Carbon tetrachloride	5.0	UG/L	10.0	U	U	Yes	
Benzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichloroethane	5.0	UG/L	10.0	U	U	Yes	
Trichloroethene	39	UG/L	10.0	D		Yes	
Methylcyclohexane	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichloropropane	5.0	UG/L	10.0	U	U	Yes	
Bromodichloromethane	5.0	UG/L	10.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	5.0	UG/L	10.0	U	U	Yes	
4-Methyl-2-pentanone	50	UG/L	10.0	U	U	Yes	
Toluene	5.0	UG/L	10.0	U	U	Yes	
trans-1,3-Dichloropropene	5.0	UG/L	10.0	U	U	Yes	
1,1,2-Trichloroethane	5.0	UG/L	10.0	U	U	Yes	
Tetrachloroethene	5.0	UG/L	10.0	U	U	Yes	
2-Hexanone	50	UG/L	10.0	U	U	Yes	
Dibromochloromethane	5.0	UG/L	10.0	U	U	Yes	
1,2-Dibromoethane	5.0	UG/L	10.0	U	U	Yes	
Chlorobenzene	5.0	UG/L	10.0	U	U	Yes	
Ethylbenzene	5.0	UG/L	10.0	U	U	Yes	
o-Xylene	5.0	UG/L	10.0	U	U	Yes	
m,p-Xylene	5.0	UG/L	10.0	U	U	Yes	
Styrene	5.0	UG/L	10.0	U	U	Yes	
Bromoform	5.0	UG/L	10.0	U	U	Yes	
Isopropylbenzene	5.0	UG/L	10.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	5.0	UG/L	10.0	U	U	Yes	
1,3-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,4-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	5.0	UG/L	10.0	U	U	Yes	
1,2,4-Trichlorobenzene	5.0	UG/L	10.0	U	U	Yes	
1,2,3-Trichlorobenzene	5.0	UG/L	10.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS6	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-09P	pH:	2	Sample Date:	04/03/2012	Sample Time:	09:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	2.5	UG/L	5.0	U	U	Yes	
Chloromethane	2.5	UG/L	5.0	U	U	Yes	
Vinyl chloride	2.5	UG/L	5.0	U	U	Yes	
Bromomethane	2.5	UG/L	5.0	U	UJ	Yes	
Chloroethane	2.5	UG/L	5.0	U	U	Yes	
Trichlorofluoromethane	2.5	UG/L	5.0	U	U	Yes	
1,1-Dichloroethene	2.5	UG/L	5.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.5	UG/L	5.0	U	U	Yes	
Acetone	25	UG/L	5.0	U	U	Yes	
Carbon disulfide	2.5	UG/L	5.0	U	U	Yes	
Methyl acetate	2.5	UG/L	5.0	U	U	Yes	
Methylene chloride	2.5	UG/L	5.0	U	U	Yes	
trans-1,2-Dichloroethene	2.5	UG/L	5.0	U	U	Yes	
Methyl tert-butyl ether	550	UG/L	5.0	E		Yes	
1,1-Dichloroethane	2.5	UG/L	5.0	U	U	Yes	
cis-1,2-Dichloroethene	2.5	UG/L	5.0	U	U	Yes	
2-Butanone	25	UG/L	5.0	U	U	Yes	
Bromochloromethane	2.5	UG/L	5.0	U	U	Yes	
Chloroform	2.5	UG/L	5.0	U	U	Yes	
1,1,1-Trichloroethane	2.5	UG/L	5.0	U	U	Yes	
Cyclohexane	2.5	UG/L	5.0	U	U	Yes	
Carbon tetrachloride	2.5	UG/L	5.0	U	U	Yes	
Benzene	2.5	UG/L	5.0	U	U	Yes	
1,2-Dichloroethane	2.5	UG/L	5.0	U	U	Yes	
Trichloroethene	2.5	UG/L	5.0	U	U	Yes	
Methylcyclohexane	2.5	UG/L	5.0	U	U	Yes	
1,2-Dichloropropane	2.5	UG/L	5.0	U	U	Yes	
Bromodichloromethane	2.5	UG/L	5.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	2.5	UG/L	5.0	U	U	Yes	
4-Methyl-2-pentanone	25	UG/L	5.0	U	U	Yes	
Toluene	2.5	UG/L	5.0	U	U	Yes	
trans-1,3-Dichloropropene	2.5	UG/L	5.0	U	U	Yes	
1,1,2-Trichloroethane	2.5	UG/L	5.0	U	U	Yes	
Tetrachloroethene	2.5	UG/L	5.0	U	U	Yes	
2-Hexanone	25	UG/L	5.0	U	U	Yes	
Dibromochloromethane	2.5	UG/L	5.0	U	U	Yes	
1,2-Dibromoethane	2.5	UG/L	5.0	U	U	Yes	
Chlorobenzene	2.5	UG/L	5.0	U	U	Yes	
Ethylbenzene	2.5	UG/L	5.0	U	U	Yes	
o-Xylene	2.5	UG/L	5.0	U	U	Yes	
m,p-Xylene	2.5	UG/L	5.0	U	U	Yes	
Styrene	2.5	UG/L	5.0	U	U	Yes	
Bromoform	2.5	UG/L	5.0	U	U	Yes	
Isopropylbenzene	2.5	UG/L	5.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	2.5	UG/L	5.0	U	U	Yes	
1,3-Dichlorobenzene	2.5	UG/L	5.0	U	U	Yes	
1,4-Dichlorobenzene	2.5	UG/L	5.0	U	U	Yes	
1,2-Dichlorobenzene	2.5	UG/L	5.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	2.5	UG/L	5.0	U	U	Yes	
1,2,4-Trichlorobenzene	2.5	UG/L	5.0	U	U	Yes	
1,2,3-Trichlorobenzene	2.5	UG/L	5.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS6	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-09P	pH:	7.7	Sample Date:	04/03/2012	Sample Time:	09:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	14	UG/L	1.0			Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS6DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-09P	pH:	2	Sample Date:	04/03/2012	Sample Time:	09:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	50	UG/L	100.0	U	U	Yes	
Chloromethane	50	UG/L	100.0	U	U	Yes	
Vinyl chloride	50	UG/L	100.0	U	U	Yes	
Bromomethane	50	UG/L	100.0	U	U	Yes	
Chloroethane	50	UG/L	100.0	U	U	Yes	
Trichlorofluoromethane	50	UG/L	100.0	U	U	Yes	
1,1-Dichloroethene	50	UG/L	100.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	50	UG/L	100.0	U	U	Yes	
Acetone	500	UG/L	100.0	U	U	Yes	
Carbon disulfide	50	UG/L	100.0	U	U	Yes	
Methyl acetate	50	UG/L	100.0	U	U	Yes	
Methylene chloride	50	UG/L	100.0	U	U	Yes	
trans-1,2-Dichloroethene	50	UG/L	100.0	U	U	Yes	
Methyl tert-butyl ether	600	UG/L	100.0	D		Yes	
1,1-Dichloroethane	50	UG/L	100.0	U	U	Yes	
cis-1,2-Dichloroethene	50	UG/L	100.0	U	U	Yes	
2-Butanone	500	UG/L	100.0	U	U	Yes	
Bromochloromethane	50	UG/L	100.0	U	U	Yes	
Chloroform	50	UG/L	100.0	U	U	Yes	
1,1,1-Trichloroethane	50	UG/L	100.0	U	U	Yes	
Cyclohexane	50	UG/L	100.0	U	U	Yes	
Carbon tetrachloride	50	UG/L	100.0	U	U	Yes	
Benzene	50	UG/L	100.0	U	U	Yes	
1,2-Dichloroethane	50	UG/L	100.0	U	U	Yes	
Trichloroethene	50	UG/L	100.0	U	U	Yes	
Methylcyclohexane	50	UG/L	100.0	U	U	Yes	
1,2-Dichloropropane	50	UG/L	100.0	U	U	Yes	
Bromodichloromethane	50	UG/L	100.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	50	UG/L	100.0	U	U	Yes	
4-Methyl-2-pentanone	500	UG/L	100.0	U	U	Yes	
Toluene	50	UG/L	100.0	U	U	Yes	
trans-1,3-Dichloropropene	50	UG/L	100.0	U	U	Yes	
1,1,2-Trichloroethane	50	UG/L	100.0	U	U	Yes	
Tetrachloroethene	50	UG/L	100.0	U	U	Yes	
2-Hexanone	500	UG/L	100.0	U	U	Yes	
Dibromochloromethane	50	UG/L	100.0	U	U	Yes	
1,2-Dibromoethane	50	UG/L	100.0	U	U	Yes	
Chlorobenzene	50	UG/L	100.0	U	U	Yes	
Ethylbenzene	50	UG/L	100.0	U	U	Yes	
o-Xylene	50	UG/L	100.0	U	U	Yes	
m,p-Xylene	50	UG/L	100.0	U	U	Yes	
Styrene	50	UG/L	100.0	U	U	Yes	
Bromoform	50	UG/L	100.0	U	U	Yes	
Isopropylbenzene	50	UG/L	100.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	50	UG/L	100.0	U	U	Yes	
1,3-Dichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,4-Dichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,2-Dichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	50	UG/L	100.0	U	U	Yes	
1,2,4-Trichlorobenzene	50	UG/L	100.0	U	U	Yes	
1,2,3-Trichlorobenzene	50	UG/L	100.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS7	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-09G	pH:	7.7	Sample Date:	04/03/2012	Sample Time:	09:45:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS7	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-09G	pH:	2	Sample Date:	04/03/2012	Sample Time:	09:45:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	0.50	UG/L	1.0	U	U	Yes	
Chloromethane	0.50	UG/L	1.0	U	U	Yes	
Vinyl chloride	0.50	UG/L	1.0	U	U	Yes	
Bromomethane	0.50	UG/L	1.0	U	U	Yes	
Chloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	UG/L	1.0	U	U	Yes	
Acetone	5.0	UG/L	1.0	U	U	Yes	
Carbon disulfide	0.50	UG/L	1.0	U	U	Yes	
Methyl acetate	0.50	UG/L	1.0	U	U	Yes	
Methylene chloride	0.50	UG/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	UG/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Butanone	5.0	UG/L	1.0	U	U	Yes	
Bromochloromethane	0.50	UG/L	1.0	U	U	Yes	
Chloroform	0.50	UG/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Cyclohexane	0.50	UG/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	UG/L	1.0	U	U	Yes	
Benzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	UG/L	1.0	U	U	Yes	
Trichloroethene	0.50	UG/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	UG/L	1.0	U	U	Yes	
Bromodichloromethane	0.50	UG/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
4-Methyl-2-pentanone	5.0	UG/L	1.0	U	U	Yes	
Toluene	0.50	UG/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	UG/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	UG/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	UG/L	1.0	U	U	Yes	
2-Hexanone	5.0	UG/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	UG/L	1.0	U	U	Yes	
Chlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Ethylbenzene	0.50	UG/L	1.0	U	U	Yes	
o-Xylene	0.50	UG/L	1.0	U	U	Yes	
m,p-Xylene	0.50	UG/L	1.0	U	U	Yes	
Styrene	0.50	UG/L	1.0	U	U	Yes	
Bromoform	0.50	UG/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	UG/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	UG/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	UG/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	UG/L	1.0	U	U	Yes	
Nonanal			1.0	NJ		Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS9	Method:	BNA	Matrix:	Water	MA Number:	1679.2
Sample Location:	AAP-GW-10G	pH:	7.7	Sample Date:	04/04/2012	Sample Time:	12:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,4-Dioxane	2.0	UG/L	1.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP
Sample Number:	Y8AS9	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-10G	pH:	2	Sample Date:	04/04/2012	Sample Time:	12:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	10	UG/L	20.0	U	U	Yes	
Chloromethane	10	UG/L	20.0	U	U	Yes	
Vinyl chloride	10	UG/L	20.0	U	U	Yes	
Bromomethane	10	UG/L	20.0	U	U	Yes	
Chloroethane	10	UG/L	20.0	U	U	Yes	
Trichlorofluoromethane	10	UG/L	20.0	U	U	Yes	
1,1-Dichloroethene	10	UG/L	20.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	UG/L	20.0	U	U	Yes	
Acetone	100	UG/L	20.0	U	U	Yes	
Carbon disulfide	10	UG/L	20.0	U	U	Yes	
Methyl acetate	10	UG/L	20.0	U	U	Yes	
Methylene chloride	10	UG/L	20.0	U	U	Yes	
trans-1,2-Dichloroethene	16	UG/L	20.0			Yes	
Methyl tert-butyl ether	10	UG/L	20.0	U	U	Yes	
1,1-Dichloroethane	10	UG/L	20.0	U	U	Yes	
cis-1,2-Dichloroethene	170	UG/L	20.0			Yes	
2-Butanone	100	UG/L	20.0	U	U	Yes	
Bromochloromethane	10	UG/L	20.0	U	U	Yes	
Chloroform	10	UG/L	20.0	U	U	Yes	
1,1,1-Trichloroethane	10	UG/L	20.0	U	U	Yes	
Cyclohexane	10	UG/L	20.0	U	U	Yes	
Carbon tetrachloride	10	UG/L	20.0	U	U	Yes	
Benzene	10	UG/L	20.0	U	U	Yes	
1,2-Dichloroethane	10	UG/L	20.0	U	U	Yes	
Trichloroethene	720	UG/L	20.0	E		Yes	
Methylcyclohexane	10	UG/L	20.0	U	U	Yes	
1,2-Dichloropropane	10	UG/L	20.0	U	U	Yes	
Bromodichloromethane	10	UG/L	20.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	10	UG/L	20.0	U	U	Yes	
4-Methyl-2-pentanone	100	UG/L	20.0	U	U	Yes	
Toluene	10	UG/L	20.0	U	U	Yes	
trans-1,3-Dichloropropene	10	UG/L	20.0	U	U	Yes	
1,1,2-Trichloroethane	10	UG/L	20.0	U	U	Yes	
Tetrachloroethene	10	UG/L	20.0	U	U	Yes	
2-Hexanone	100	UG/L	20.0	U	U	Yes	
Dibromochloromethane	10	UG/L	20.0	U	U	Yes	
1,2-Dibromoethane	10	UG/L	20.0	U	U	Yes	
Chlorobenzene	10	UG/L	20.0	U	U	Yes	
Ethylbenzene	10	UG/L	20.0	U	U	Yes	
o-Xylene	10	UG/L	20.0	U	U	Yes	
m,p-Xylene	10	UG/L	20.0	U	U	Yes	
Styrene	10	UG/L	20.0	U	U	Yes	
Bromoform	10	UG/L	20.0	U	U	Yes	
Isopropylbenzene	10	UG/L	20.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	10	UG/L	20.0	U	U	Yes	
1,3-Dichlorobenzene	10	UG/L	20.0	U	U	Yes	
1,4-Dichlorobenzene	10	UG/L	20.0	U	U	Yes	
1,2-Dichlorobenzene	10	UG/L	20.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	10	UG/L	20.0	U	U	Yes	
1,2,4-Trichlorobenzene	10	UG/L	20.0	U	U	Yes	
1,2,3-Trichlorobenzene	10	UG/L	20.0	U	U	Yes	

Case No:	42404	Contract:	EPW11031	SDG No:	Y8AQ5	Lab Code:	KAP

Sample Number:	Y8AS9DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	AAP-GW-10G	pH:	2	Sample Date:	04/04/2012	Sample Time:	12:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoromethane	100	UG/L	200.0	U	U	Yes	
Chloromethane	100	UG/L	200.0	U	U	Yes	
Vinyl chloride	100	UG/L	200.0	U	U	Yes	
Bromomethane	100	UG/L	200.0	U	U	Yes	
Chloroethane	100	UG/L	200.0	U	U	Yes	
Trichlorofluoromethane	100	UG/L	200.0	U	U	Yes	
1,1-Dichloroethene	100	UG/L	200.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	100	UG/L	200.0	U	U	Yes	
Acetone	1000	UG/L	200.0	U	U	Yes	
Carbon disulfide	100	UG/L	200.0	U	U	Yes	
Methyl acetate	100	UG/L	200.0	U	U	Yes	
Methylene chloride	100	UG/L	200.0	U	U	Yes	
trans-1,2-Dichloroethene	100	UG/L	200.0	U	U	Yes	
Methyl tert-butyl ether	100	UG/L	200.0	U	U	Yes	
1,1-Dichloroethane	100	UG/L	200.0	U	U	Yes	
cis-1,2-Dichloroethene	160	UG/L	200.0	D		Yes	
2-Butanone	1000	UG/L	200.0	U	U	Yes	
Bromochloromethane	100	UG/L	200.0	U	U	Yes	
Chloroform	100	UG/L	200.0	U	U	Yes	
1,1,1-Trichloroethane	100	UG/L	200.0	U	U	Yes	
Cyclohexane	100	UG/L	200.0	U	U	Yes	
Carbon tetrachloride	100	UG/L	200.0	U	U	Yes	
Benzene	100	UG/L	200.0	U	U	Yes	
1,2-Dichloroethane	100	UG/L	200.0	U	U	Yes	
Trichloroethene	510	UG/L	200.0	D		Yes	
Methylcyclohexane	100	UG/L	200.0	U	U	Yes	
1,2-Dichloropropane	100	UG/L	200.0	U	U	Yes	
Bromodichloromethane	100	UG/L	200.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	100	UG/L	200.0	U	U	Yes	
4-Methyl-2-pentanone	1000	UG/L	200.0	U	U	Yes	
Toluene	100	UG/L	200.0	U	U	Yes	
trans-1,3-Dichloropropene	100	UG/L	200.0	U	U	Yes	
1,1,2-Trichloroethane	100	UG/L	200.0	U	U	Yes	
Tetrachloroethene	100	UG/L	200.0	U	U	Yes	
2-Hexanone	1000	UG/L	200.0	U	U	Yes	
Dibromochloromethane	100	UG/L	200.0	U	U	Yes	
1,2-Dibromoethane	100	UG/L	200.0	U	U	Yes	
Chlorobenzene	100	UG/L	200.0	U	U	Yes	
Ethylbenzene	100	UG/L	200.0	U	U	Yes	
o-Xylene	100	UG/L	200.0	U	U	Yes	
m,p-Xylene	100	UG/L	200.0	U	U	Yes	
Styrene	100	UG/L	200.0	U	U	Yes	
Bromoform	100	UG/L	200.0	U	U	Yes	
Isopropylbenzene	100	UG/L	200.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	100	UG/L	200.0	U	U	Yes	
1,3-Dichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,4-Dichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,2-Dichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	100	UG/L	200.0	U	U	Yes	
1,2,4-Trichlorobenzene	100	UG/L	200.0	U	U	Yes	
1,2,3-Trichlorobenzene	100	UG/L	200.0	U	U	Yes	

ICF International / Laboratory Data Consultants
Environmental Services Assistance Team, Region 9
1337 South 46th Street, Building 201, Richmond, CA 94804-4698
Phone: (510) 412-2300; Fax: (510) 412-2304.

MEMORANDUM

TO: Matt Mitguard, Site Manager
Brownfield and Site Assessment Section, SFD-6-1

THROUGH: Rose Fong, ESAT Task Order Manager (TOM)
Quality Assurance (QA) Program, MTS-3

FROM: Kathy O'Brien, Data Review Task Manager
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041
Technical Direction Form No.: 01306016

DATE: September 17, 2012

SUBJECT: Review of Analytical Data, Tier 3

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

Site:	Atlantic Ave South Gate
Site Account No.:	09 ZZ QB00
CERCLIS ID No.:	CAN000908953
Case No.:	42404
SDG No.:	Y8AQ5
Laboratory:	KAP Technologies, Inc. (KAP)
Analysis:	1,4-Dioxane as Semivolatile
Samples:	17 Water Sample (see Case Summary)
Collection Date:	April 2, 3, and 4, 2012
Reviewer:	Santiago Lee, ESAT/Laboratory Data Consultants (LDC)

This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.

If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.

Attachment

cc: Ray Flores, CLP PO USEPA Region 6
Steve Remaley, CLP PO USEPA Region 9

CLP PO: [X] FYI   [ ] Action

SAMPLING ISSUES: [X] Yes   [ ] No

Data Validation Report - Tier 3

Case No.: 42404
SDG No.: Y8AQ5
Site: Atlantic Ave South Gate
Laboratory: KAP Technologies, Inc. (KAP)
Reviewer: Santiago Lee, ESAT/LDC
Date: September 17, 2012

I. CASE SUMMARY

Sample Information

Samples:	Y8AR1, Y8AR3 through Y8AS7, and Y8AS9
Concentration and Matrix:	Low Concentration Water
Analysis:	1,4-Dioxane as Semivolatile
Statement of Work (SOW):	SOM01.2 and Modification Reference No. 1679.2
Collection Date:	April 2, 3, and 4, 2012
Sample Receipt Date:	April 6, 2012
Extraction Date:	April 10, 2012
Analysis Date:	April 20, 2012

Field QC

Field Blanks (FB):	Not Provided
Equipment Blanks (EB):	Not Provided
Background Samples (BG):	Y8AR1
Field Duplicates (D1):	Y8AR7 and Y8AS9
Field Duplicates (D2):	Y8AS5 and Y8AT6 (in SDG Y8AT6)

Laboratory QC

Method Blanks & Associated Samples:

SBLK39:	All samples

Tables

1A:	Analytical Results with Qualifications
1B:	Data Qualifier Definitions for Organic Data Review

CLP PO Action

None.

Sampling Issues

1. All samples were collected with less than 900 mL in each bottle, which resulted in elevated quantitation limits of 2.4-4.4 ug/L.

2. The laboratory indicated on sample log-in sheets that one amber bottle for samples Y8AR7 and Y8AS6 was received broken. There was enough sample volume in the other bottle for analysis.

3. The sampler signature is missing on traffic report and chain of custody records (TR/COCs).

Additional Comments

The Field QA/QC Summary Form incorrectly states that Y8AS9 is the field duplicate for Y8AR5; Y8AS9 is the field duplicate for Y8AR7 (refer to the electronic mail from Brian Reilly to Rose Fong dated 09/14/12).

The sample volumes, quantitation limits, and detect results for all samples were reported incorrectly on Form 1Ds. The laboratory submitted revised Form 1Ds upon request, on 08/31/12 and 09/11/12; see Table 1A for corrected quantitation limits.

The following information was missing from the data package:

- Qedit quantitation reports for 1,4-dichloroethane-d4 and 1,4-dioxane-d8 in SSTD080AW and 1,4-dioxane in SSTD080AW and SSTD002AW; and
- Preparation logbook page for surrogate solution.

The laboratory submitted the missing pages upon request, on 08/31/12. All standards associated with sample extraction and analysis were analyzed before the expiration date.

The laboratory indicated that manual integrations were performed on calibrations. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.

This report was prepared in accordance with the following documents:

- *Request for Quote (RFQ) for Modified Analysis*, Modification Reference Number: 1679.2, September 11, 2009;
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration*, SOM01.1, May 2005;
- *Modifications Updating SOM01.1 to SOM01.2*, Amended April 11, 2007; and
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, June 2008.

For technical definitions, refer to *Exhibit G (Glossary of Terms), USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration*, SOM01.1, May 2005.

II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

	Parameter	Acceptable	Comment
1	Holding Time/Preservation	No	A
2	GC/MS Tune/GC Performance	Yes	
3	Initial Calibration	Yes	
4	Continuing Calibration Verification (CCV)	Yes	
5	Laboratory Blanks	Yes	
6	Field Blanks	N/A	
7	Deuterated Monitoring Compounds (DMCs)	Yes	

8	Matrix Spike/Matrix Spike Duplicates (MS/MSDs)	N/A
9	GPC Performance Check	N/A
10	Internal Standards	Yes
11	Compound Identification	Yes
12	Compound Quantitation	Yes
13	System Performance	Yes
14	Field Duplicate Sample Analysis	Yes

N/A = Not Applicable

III. VALIDITY AND COMMENTS

A. Nondetected results for the following analyte are qualified as estimated due to missed technical holding time and are flagged "UJ" in Table 1A.

- 1,4-Dioxane in samples Y8AR1, Y8AR3, Y8AR8, and Y8AR9

The extraction of samples listed above exceeded the 7-day technical holding time for water samples as shown below.

Sample	Date Collected	Date Extracted	No. of Days Exceeded
Y8AR1	04/02/12	04/10/12	1
Y8AR3	04/02/12	04/10/12	1
Y8AR8	04/02/12	04/10/12	1
Y8AR9	04/02/12	04/10/12	1

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix Dilution Factor % Moisture Units	Y8AR1 BG AAP-GW-01G Field_Sample Water/LOW 1.0 ug/L			Y8AR3 AAP-GW-02G Field_Sample Water/LOW 1.0 ug/L			Y8AR4 AAP-GW-03P Field_Sample Water/LOW 1.0 ug/L			Y8AR5 AAP-GW-03G Field_Sample Water/LOW 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
1,4-Dioxane	2.5	UJ	A	2.4	UJ	A	4.0	U		2.5	U	

Sample Location Type Matrix Dilution Factor % Moisture Units	Y8AR6 AAP-GW-04P Field_Sample Water/LOW 1.0 ug/L			Y8AR7 D1 AAP-GW-04G Field_Sample Water/LOW 1.0 ug/L			Y8AR8 AAP-GW-05P Field_Sample Water/LOW 1.0 ug/L			Y8AR9 AAP-GW-05G Field_Sample Water/LOW 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
1,4-Dioxane	4.0	U		2.9	U		2.7	UJ	A	2.4	UJ	A

Sample Location Type Matrix Dilution Factor % Moisture Units	Y8AS0 AAP-GW-06P Field_Sample Water/LOW 1.0 ug/L			Y8AS1 AAP-GW-06G Field_Sample Water/LOW 1.0 ug/L			Y8AS2 AAP-GW-07P Field_Sample Water/LOW 1.0 ug/L			Y8AS3 AAP-GW-07G Field_Sample Water/LOW 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
1,4-Dioxane	4.0	U		2.9	U		4.4	U		2.7	U	

Sample Location Type Matrix Dilution Factor % Moisture Units	Y8AS4 AAP-GW-08P Field_Sample Water/LOW 1.0 ug/L			Y8AS5 D2 AAP-GW-08G Field_Sample Water/LOW 1.0 ug/L			Y8AS6 AAP-GW-09P Field_Sample Water/LOW 1.0 ug/L			Y8AS7 AAP-GW-09G Field_Sample Water/LOW 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
1,4-Dioxane	4.4	U		2.9	U		20			2.5	U	

Sample Location Type Matrix Dilution Factor % Moisture Units	Y8AS9 D1 AAP-GW-10G Field_Sample Water/LOW 1.0 ug/L			SBLK39 Method_Blank Water/LOW 1.0 ug/L								
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
1,4-Dioxane	2.5	U		2.0	U							

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.

U The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.

J The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.

R The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

ICF International / Laboratory Data Consultants
Environmental Services Assistance Team, Region 9
1337 South 46th Street, Building 201, Richmond, CA 94804-4698
Phone: (510) 412-2300; Fax: (510) 412-2304.

MEMORANDUM

TO: Matt Mitguard, Site Manager
Brownfield and Site Assessment Section, SFD-6-1

THROUGH: Rose Fong, ESAT Task Order Manager (TOM)
Quality Assurance (QA) Program, MTS-3

FROM: Kathy O'Brien, Data Review Task Manager
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041
Technical Direction Form No.: 01306016

DATE: September 17, 2012

SUBJECT: Review of Analytical Data, Tier 3

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

Site:	Atlantic Ave South Gate
Site Account No.:	09 ZZ QB00
CERCLIS ID No.:	CAN000908953
Case No.:	42404
SDG No.:	Y8AQ5
Laboratory:	KAP Technologies, Inc. (KAP)
Analysis:	Trace Volatiles
Samples:	20 Water Samples (see Case Summary)
Collection Date:	April 2, 3, and 4, 2012
Reviewer:	Santiago Lee, ESAT/Laboratory Data Consultants (LDC)

This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.

If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.

Attachment

cc: Ray Flores, CLP PO USEPA Region 6
Steve Remaley, CLP PO USEPA Region 9

CLP PO: [ ] FYI [X] Action

SAMPLING ISSUES: [X] Yes [ ] No

Data Validation Report - Tier 3

Case No.: 42404
SDG No.: Y8AQ5
Site: Atlantic Ave South Gate
Laboratory: KAP Technologies, Inc. (KAP)
Reviewer: Santiago Lee, ESAT/LDC
Date: September 17, 2012

I. CASE SUMMARY

Sample Information

Samples:	Y8AQ5, Y8AQ6, Y8AR0, Y8AR1, Y8AR3 through Y8AS7, and Y8AS9
Concentration and Matrix:	Low Concentration Water
Analysis:	Trace Volatiles
Statement of Work (SOW):	SOM01.2
Collection Date:	April 2, 3, and 4, 2012
Sample Receipt Date:	April 6, 2012
Extraction Date:	Not Applicable
Analysis Date:	April 12, 13, and 14, 2012

Field QC

Field Blanks (FB):	Y8AT7 and Y8AT8 (in SDG Y8AT6)
Equipment Blanks (EB):	Y8AQ5 and Y8AQ6
Trip Blanks (TB):	Not Provided
Background Samples (BG):	Y8AR1
Field Duplicates (D1):	Y8AR7 and Y8AS9
Field Duplicates (D2):	Y8AS5 and Y8AT6 (in SDG Y8AT6)

Laboratory QC

Method Blanks & Associated Samples:

VBLK1X:	Y8AQ5, Y8AQ6, Y8AR0, Y8AR1, Y8AR3 through Y8AR6, Y8AR8
VBLK2A:	Y8AR7, Y8AR9 through Y8AS1, Y8AS3 through Y8AS5, Y8AS7, Y8AR3DL, Y8AR5DL, Y8AR6DL, Y8AR7DL, Y8AS5DL, Y8AS6DL, Y8AS9DL
VBLK2C:	Y8AS2, Y8AS3MS, Y8AS3MSD, Y8AR4RE, Y8AS6
VBLK2E:	Y8AS9
VBLK3J:	Storage blank VHBLK01

Tables

1A:	Analytical Results with Qualifications
1B:	Data Qualifier Definitions for Organic Data Review

CLP PO Action

Nondetected results for sample Y8AR4 are qualified as rejected (R) due to missed technical holding time (see Comment A).

Sampling Issues

1. Carbon disulfide was found in equipment blank Y8AQ5 (see Table 1A for concentration); it was not detected in the samples.

2. The sampler signature is missing on traffic report and chain of custody records (TR/COCs).

3. The field blanks were not submitted "blind" to the laboratory since the matrix was stated as "Field QC" and "FB" was used as part of station locations on TR/COCs.

Additional Comments

The Field QA/QC Summary Form incorrectly states that Y8AS9 is the field duplicate for Y8AR5; Y8AS9 is the field duplicate for Y8AR7 (refer to the electronic mail from Brian Reilly to Rose Fong dated 09/14/12).

The internal standard (IS) areas for sample Y8AS4 exceeded QC limits as shown below. Sample Y8AS4 was reanalyzed and the IS areas were below QC limits for 1,4-difluorobenzene and 1,4-dichlorobenzene-d4. Results from the original analysis are presented in Table 1A since IS areas are above QC limits. Sample results are not qualified, in accordance with the National Functional Guidelines.

Sample	Internal Standard	Area	QC Limit
Y8AS4	Chlorobenzene-d5	9,058,818	2,956,708-6,898,987
Y8AS4	1,4-Difluorobenzene	8,098,603	3,132,343-7,308,800
Y8AS4	1,4-Dichlorobenzene-d4	3,448,197	1,437,229-3,353,534
Y8AS4RE	1,4-Difluorobenzene	2,912,068	3,470,522-8,097,885
Y8AS4RE	1,4-Dichlorobenzene-d4	1,229,496	1,564,569-3,650,660

Samples Y8AR6, Y8AR7, Y8AS6, and Y8AS9 were analyzed at 8.0-, 8.0-, 5.0-, and 20-fold dilutions, respectively, due to high levels of target analytes. The quantitation limits listed for these samples in Table 1A have been raised to account for the dilution.

The following compounds were incorrectly reported as nondetects (i.e., false negatives):

- Bromomethane in Y8AR0 and VHBLK01;
- 1,1-Dichloroethene in Y8AS0 and VHBLK01;
- Acetone in VHBLK01;
- Methylene chloride in Y8AR9, VBLK2C, and VBLK3J;
- trans-1,2-Dichloroethene, 1,1-dichloroethane, and 1,2-dichloroethane in Y8AR0;
- cis-1,2-Dichloroethene in Y8AR1, Y8AR4, and Y8AR9;
- Toluene in Y8AR0, T8AR1, Y8AR4, and VBLK2C; and
- 1,2,4-Trichlorobenzene in VBLK2C.

The laboratory submitted revised data (Form Is, quantitation reports, and chromatograms) and mass spectra upon request, on 08/31/12 (see Table 1A for concentrations and Comment C).

m,p-Xylene was incorrectly quantitated for calibrations VSTD0052C and VSTD0052E. The laboratory submitted revised data (Form VII, quantitation reports, and chromatograms) upon request, on 08/31/12.

The following information was missing from the data package:

- Qedit quantitation reports for 1,2-dichloropropane in VSTD0013A and trans-1,3-dichloropropene-d2 in VBLK1X; and
- Run log for 04/13/12 22:56.

The laboratory submitted the missing pages upon request, on 08/31/12.

In addition to laboratory artifacts (approximate retention times of 2.9-3.1, 4.9, 7.3, 10.8, 11.2, 15.0, and 18.7 minutes), tentatively identified compounds (TICs) were found in samples Y8AR0, Y8AR1, Y8AR3, Y8AR4, Y8AR8, Y8AR9, Y8AS0, Y8AS1, Y8AS5, and Y8AS7 (see attached Form 1Js).

The laboratory indicated that manual integration was performed on calibrations and samples. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.

This report was prepared in accordance with the following documents:

- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration*, SOM01.1, May 2005;
- *Modifications Updating SOM01.1 to SOM01.2*, Amended April 11, 2007; and
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, June 2008.

For technical definitions, refer to *Exhibit G (Glossary of Terms), USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration*, SOM01.1, May 2005.

II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

	Parameter	Acceptable	Comment
1	Holding Time/Preservation	No	A
2	GC/MS Tune/GC Performance	Yes	
3	Initial Calibration	No	D
4	Continuing Calibration Verification (CCV)	No	E
5	Laboratory Blanks	No	C
6	Field Blanks	No	C
7	Deuterated Monitoring Compounds (DMCs)	No	F
8	Matrix Spike/Matrix Spike Duplicates (MS/MSDs)	No	H

9	Internal Standards	Yes	
10	Compound Identification	Yes	
11	Compound Quantitation	Yes	B, I
12	System Performance	Yes	
13	Field Duplicate Sample Analysis	No	G

N/A = Not Applicable

III. VALIDITY AND COMMENTS

A. Nondetected results for the following analytes are qualified as rejected and detected results are qualified as estimated due to missed technical holding time and are flagged "R" and "J", respectively, in Table 1A.

- All analytes in sampleY8AR4.

For sample Y8AR4, the Field QA/QC Summary Form indicates that only unpreserved vials were submitted and the TR/COC states "(Ice Only)" . In addition, the sampler confirmed that Y8AR4 was collected using unpreserved vials (refer to the electronic mail from Brian Reilly to Rose Fong dated 09/14/12). It appears that the laboratory incorrectly stated a pH < 2 for Y8AR4. The analysis of Y8AR4 exceeded the 7-day technical holding time for unpreserved water samples as shown below.

Sample	Date Collected	Date Analyzed	No. of Days Exceeded
Y8AR4	04/02/12	04/10/12	1

Detected results for sample Y8AR4 may be biased low. Nondetected results are considered unusable (R) according to the National Functional Guidelines.

The Field QA/QC Summary Form and the TR/COC indicate that both preserved and unpreserved vials were submitted for sample Y8AS4. The laboratory states a pH < 2 for Y8AS4, indicating that a preserved vial was analyzed. The preserved water samples were analyzed within the 14-day technical holding time.

B. The following results are qualified as estimated and flagged "J" in Table 1A.

- All detected results below the contract required quantitation limits (CRQL).

The results are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision below the quantitation limit.

C. The following results are qualified as nondetected due to method blank contamination and are flagged "U" in Table 1A.

- Bromomethane in sample Y8AR0;
- 1,1-Dichloroethene in sample Y8AS0;

- Acetone in samples Y8AR0, Y8AR8, Y8AS1, and Y8AS2;
- Methylene chloride in samples Y8AQ5, Y8AQ6, Y8AR0, Y8AR1, Y8AR3 through Y8AR5, Y8AR9, and Y8AS2; and
- Toluene in sample Y8AS2.

Bromomethane and 1,1-dichloroethene were found in storage blank VHBLK01; acetone was found in method blanks VBLK1X, VBLK2C, and VBLK2E and storage blank VHBLK01; methylene chloride was found in method blanks VBLK1X, VBLK2C, and VBLK3J and storage blank VHBLK01; toluene was found in method blanks VBLK2C and VBLK2E and equipment blank Y8AQ5 (see Table 1A for concentrations). Results listed above are considered nondetected (U) according to the National Functional Guidelines. For sample results of methylene chloride and acetone that are greater than CRQL but less than four times CRQL, the quantitation limits are raised to the sample results and reported as nondetected.

Positive toluene results were reported for samples Y8AR0 (0.17 ug/L), Y8AR1 (0.11 ug/L), Y8AR4 (0.12 ug/L), and Y8AS0 (0.19 ug/L). These results may be false positives because although toluene was not detected in associated method blanks, it was found in method blanks VBLK2C and VBLK2E (see Table 1A for concentrations).

D. Results for the following analytes are qualified as estimated due to large percent relative standard deviations (%RSDs) in initial calibrations and are flagged “UJ” in Table 1A.

- o-Xylene and styrene in all samples and method blanks VBLK1X, VBLK2A, VBLK2C, and VBLK2E.

%RSDs of 32.4% and 30.7% were reported for o-xylene and styrene, respectively, in 04/10/12 initial calibration. These values exceeded the 30.0% validation criterion.

E. Results for the following analytes are qualified as estimated due to large percent differences (%Ds) in CCVs and are flagged "UJ" in Table 1A.

- Bromomethane in samples Y8AS2 and Y8AS6 and method blank VBLK2C; and
- 1,2-Dichloroethane in method blank VBLK3J and storage blank VHBLK01.

A %D of +33.9% was reported for bromomethane in 04/13/12 12:32 CCV; %D of +34.4% was reported for 1,2-dichloroethane in 04/25/12 10:22 CCV. These values exceeded the $\pm$30.0% validation criterion for opening CCVs.

F. Results for the following analytes are qualified as estimated due to low DMC recoveries and are flagged “UJ” in Table 1A.

{Chloroethane-d5}

- Dichlorodifluoromethane, chloromethane, bromomethane, chloroethane, and carbon disulfide in sample Y8AS5.

DMC recoveries outside QC limits are shown below.

Sample	DMC	% Recovery	QC Limit
Y8AS5	Chloroethane-d5	68	71-131
Y8AR3	2-Hexanone-d5	140	28-135
Y8AR1	1,2-Dichlorobenzene-d4	134	80-131
Y8AR3	1,2-Dichlorobenzene-d4	137	80-131
Y8AR7	1,2-Dichlorobenzene-d4	147	80-131
Y8AR8	1,2-Dichlorobenzene-d4	133	80-131
Y8AS1	1,2-Dichlorobenzene-d4	135	80-131
Y8AS5	1,2-Dichlorobenzene-d4	133	80-131
Y8AS9	1,2-Dichlorobenzene-d4	134	80-131

The recovery for chloroethane-d5 in sample Y8AS5 is low. Since qualified results are nondetected, false negatives may exist. Sample Y8AS5 was not re-analyzed undiluted.

Recoveries for DMCs 2-hexanone-d5 and 1,2-dichlorobenzene-d4 exceeded QC limits, indicating high bias in detected results; associated sample results were not qualified because they were nondetects.

G. In the analysis of the field duplicate pair, the following outlier (relative percent difference >25%) was reported.

Analyte	Y8AS5 (D1) Conc., µg/L	Y8AT6 (D1) Conc., µg/L	RPD
Trichloroethene	39	30	26.1

The effect on data quality is not known.

H. The MS/MSD recoveries for toluene and chlorobenzene in QC samples Y8AS3MS and Y8AS3MSD exceeded the criteria for accuracy specified in the SOW, as shown below.

Analyte	Y8AS3MS % Recovery	Y8AS3MSD % Recovery	QC limit % Recovery
Toluene	172	172	76-125
Chlorobenzene	194	194	75-130

Results reported may indicate poor laboratory technique or matrix effects which may interfere with analysis. No adverse effect on data quality is expected since toluene was detected at very low concentrations and chlorobenzene was not detected in the samples.

I. Several samples (see table below) required reanalysis to obtain results within the calibration range for the indicated analytes. Results for these analytes are reported from the diluted analysis in Table 1A. Unless noted elsewhere, other results are reported from the undiluted analysis.

Sample	Dilution	Analytes
Y8AR3	5.0	cis-1,2-Dichloroethene
Y8AR5	20	Trichloroethene
Y8AR6	100	Trichloroethene
Y8AR7	100	cis-1,2-Dichloroethene and Trichloroethene
Y8AS5	10	Trichloroethene
Y8AS6	100	Methyl tert-butyl ether
Y8AS9	200	Trichloroethene

Data users should note that concentrations from undiluted analysis for cis-1,2-dichloroethene in Y8AR3 (29 ug/L) and for trichloroethene in Y8AS9 (720 ug/L) are significantly higher than concentrations from the diluted analysis reported in Table 1A.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample **Location** **Type** **Matrix/Level** **Dilution Factor** **% Moisture** **Units**	**Y8AQ5 EB** **AAP-EB-001** **Field_Sample** **Water/TRACE** **1.0** **ug/L**			**Y8AQ6 EB** **AAP-EB-002** **Field_Sample** **Water/TRACE** **1.0** **ug/L**			**Y8AR0** **AAP-GW-01P** **Field_Sample** **Water/TRACE** **1.0** **ug/L**			**Y8AR1 BG** **AAP-GW-01G** **Field_Sample** **Water/TRACE** **1.0** **ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Vinyl chloride	0.50	U		0.50	U		0.50	U		0.50	U	
Bromomethane	0.50	U		0.50	U		0.50	U	C	0.50	U	
Chloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Trichlorofluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Acetone	5.0	U		5.0	U		12	U	C	5.0	U	
Carbon disulfide	6.1			0.50	U		0.50	U		0.50	U	
Methyl acetate	0.50	U		0.50	U		0.50	U		0.50	U	
Methylene chloride	0.50	U	C	0.50	U	C	0.50	U	C	0.50	U	C
trans-1,2-Dichloroethene	0.50	U		0.50	U		0.17	J	B	0.50	U	
Methyl tert-butyl ether	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethane	0.50	U		0.50	U		0.15	J	B	0.50	U	
cis-1,2-Dichloroethene	0.50	U		0.50	U		0.35	J	B	0.13	J	B
2-Butanone	5.0	U		5.0	U		5.0	U		5.0	U	
Bromochloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloroform	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,1-Trichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Cyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
Carbon tetrachloride	0.50	U		0.50	U		0.50	U		0.50	U	
Benzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloroethane	0.50	U		0.50	U		0.12	J	B	0.50	U	

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	Y8AQ5 EB AAP-EB-001 Field_Sample Water/TRACE 1.0 ug/L			Y8AQ6 EB AAP-EB-002 Field_Sample Water/TRACE 1.0 ug/L			Y8AR0 AAP-GW-01P Field_Sample Water/TRACE 1.0 ug/L			Y8AR1 BG AAP-GW-01G Field_Sample Water/TRACE 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	0.50	U		0.50	U		3.7			0.50	U	
Methylcyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloropropane	0.50	U		0.50	U		0.50	U		0.50	U	
Bromodichloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
cis-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U		0.50	U	
4-Methyl-2-pentanone	5.0	U		5.0	U		5.0	U		5.0	U	
Toluene	0.24	J	B	0.50	U		0.17	J	B	0.11	J	B
trans-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2-Trichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Tetrachloroethene	0.50	U		0.50	U		3.1			0.50	U	
2-Hexanone	5.0	U		5.0	U		5.0	U		5.0	U	
Dibromochloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromoethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
Ethylbenzene	0.50	U		0.50	U		0.50	U		0.50	U	
o-Xylene	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D
m,p-Xylene	0.50	U		0.50	U		0.50	U		0.50	U	
Styrene	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D
Bromoform	0.50	U		0.50	U		0.50	U		0.50	U	
Isopropylbenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2,2-Tetrachloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,3-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,4-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromo-3-chloropropane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2,4-Trichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2,3-Trichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**Y8AR3 AAP-GW-02G Field_Sample Water/TRACE 1.0 ug/L**			**Y8AR4 AAP-GW-03P Field_Sample Water/TRACE 1.0 ug/L**			**Y8AR5 AAP-GW-03G Field_Sample Water/TRACE 1.0 ug/L**			**Y8AR6 AAP-GW-04P Field_Sample Water/TRACE 8.0 ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Chloromethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Vinyl chloride	0.50	U		0.50	R	A	0.50	U		4.0	U	
Bromomethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Chloroethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Trichlorofluoromethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,1-Dichloroethene	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Acetone	5.0	U		5.0	R	A	5.0	U		40	U	
Carbon disulfide	0.50	U		0.50	R	A	0.50	U		4.0	U	
Methyl acetate	0.50	U		0.50	R	A	0.50	U		4.0	U	
Methylene chloride	0.57	U	C	0.50	R	A,C	0.50	U	C	4.0	U	
trans-1,2-Dichloroethene	7.4			0.50	R	A	0.95			4.0	U	
Methyl tert-butyl ether	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,1-Dichloroethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
cis-1,2-Dichloroethene	21		I	0.77	J	A	13			5.3		
2-Butanone	5.0	U		5.0	R	A	5.0	U		40	U	
Bromochloromethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Chloroform	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,1,1-Trichloroethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Cyclohexane	1.8			0.50	R	A	0.50	U		4.0	U	
Carbon tetrachloride	0.50	U		0.50	R	A	0.50	U		4.0	U	
Benzene	3.7			0.50	R	A	0.50	U		4.0	U	
1,2-Dichloroethane	0.50	U		0.50	R	A	0.50	U		4.0	U	

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	Y8AR3 AAP-GW-02G Field_Sample Water/TRACE 1.0 ug/L			Y8AR4 AAP-GW-03P Field_Sample Water/TRACE 1.0 ug/L			Y8AR5 AAP-GW-03G Field_Sample Water/TRACE 1.0 ug/L			Y8AR6 AAP-GW-04P Field_Sample Water/TRACE 8.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	8.1			11	J	A	92		I	490		I
Methylcyclohexane	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,2-Dichloropropane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Bromodichloromethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
cis-1,3-Dichloropropene	0.50	U		0.50	R	A	0.50	U		4.0	U	
4-Methyl-2-pentanone	5.0	U		5.0	R	A	5.0	U		40	U	
Toluene	0.50	U		0.12	J	A,B	0.50	U		4.0	U	
trans-1,3-Dichloropropene	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,1,2-Trichloroethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Tetrachloroethene	0.50	U		0.50	R	A	0.50	U		1.8	J	B
2-Hexanone	5.0	U		5.0	R	A	5.0	U		40	U	
Dibromochloromethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,2-Dibromoethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
Chlorobenzene	0.50	U		0.50	R	A	0.50	U		4.0	U	
Ethylbenzene	0.50	U		0.50	R	A	0.50	U		4.0	U	
o-Xylene	0.50	UJ	D	0.50	R	A,D	0.50	UJ	D	4.0	UJ	D
m,p-Xylene	0.50	U		0.50	R	A	0.50	U		4.0	U	
Styrene	0.50	UJ	D	0.50	R	A,D	0.50	UJ	D	4.0	UJ	D
Bromoform	0.50	U		0.50	R	A	0.50	U		4.0	U	
Isopropylbenzene	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,1,2,2-Tetrachloroethane	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,3-Dichlorobenzene	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,4-Dichlorobenzene	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,2-Dichlorobenzene	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,2-Dibromo-3-chloropropane	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,2,4-Trichlorobenzene	0.50	U		0.50	R	A	0.50	U		4.0	U	
1,2,3-Trichlorobenzene	0.50	U		0.50	R	A	0.50	U		4.0	U	

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**Y8AR7 D1 AAP-GW-04G Field_Sample Water/TRACE 8.0 ug/L**			**Y8AR8 AAP-GW-05P Field_Sample Water/TRACE 1.0 ug/L**			**Y8AR9 AAP-GW-05G Field_Sample Water/TRACE 1.0 ug/L**			**Y8AS0 AAP-GW-06P Field_Sample Water/TRACE 1.0 ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	4.0	U		0.50	U		0.50	U		0.50	U	
Chloromethane	4.0	U		0.50	U		0.50	U		0.50	U	
Vinyl chloride	4.0	U		0.50	U		0.50	U		0.50	U	
Bromomethane	4.0	U		0.50	U		0.50	U		0.50	U	
Chloroethane	4.0	U		0.50	U		0.50	U		0.50	U	
Trichlorofluoromethane	4.0	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethene	4.0	U		0.50	U		0.50	U		0.50	U	C
1,1,2-Trichloro-1,2,2-trifluoroethane	4.0	U		0.50	U		0.50	U		0.50	U	
Acetone	40	U		5.1	U	C	5.0	U		5.0	U	
Carbon disulfide	4.0	U		0.50	U		0.50	U		0.50	U	
Methyl acetate	4.0	U		0.50	U		0.50	U		0.50	U	
Methylene chloride	4.0	U		0.50	U		0.50	U	C	0.50	U	
trans-1,2-Dichloroethene	14			0.50	U		0.50	U		0.50	U	
Methyl tert-butyl ether	4.0	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethane	4.0	U		0.50	U		0.50	U		0.50	U	
cis-1,2-Dichloroethene	160		I	0.50	U		0.14	J	B	0.68		
2-Butanone	40	U		5.0	U		5.0	U		5.0	U	
Bromochloromethane	4.0	U		0.50	U		0.50	U		0.50	U	
Chloroform	4.0	U		0.50	U		0.50	U		0.50	U	
1,1,1-Trichloroethane	4.0	U		0.50	U		0.50	U		0.50	U	
Cyclohexane	4.0	U		0.50	U		0.50	U		0.50	U	
Carbon tetrachloride	4.0	U		0.50	U		0.50	U		0.50	U	
Benzene	4.0	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloroethane	4.0	U		0.50	U		0.50	U		0.50	U	

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**Y8AR7 D1 AAP-GW-04G Field_Sample Water/TRACE 8.0 ug/L**			**Y8AR8 AAP-GW-05P Field_Sample Water/TRACE 1.0 ug/L**			**Y8AR9 AAP-GW-05G Field_Sample Water/TRACE 1.0 ug/L**			**Y8AS0 AAP-GW-06P Field_Sample Water/TRACE 1.0 ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	520		I	0.41	J	B	0.50	U		6.6		
Methylcyclohexane	4.0	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloropropane	4.0	U		0.50	U		0.50	U		0.50	U	
Bromodichloromethane	4.0	U		0.50	U		0.50	U		0.50	U	
cis-1,3-Dichloropropene	4.0	U		0.50	U		0.50	U		0.50	U	
4-Methyl-2-pentanone	40	U		5.0	U		5.0	U		5.0	U	
Toluene	4.0	U		0.50	U		0.50	U		0.19	J	B
trans-1,3-Dichloropropene	4.0	U		0.50	U		0.50	U		0.50	U	
1,1,2-Trichloroethane	4.0	U		0.50	U		0.50	U		0.50	U	
Tetrachloroethene	4.0	U		0.50	U		0.50	U		0.50	U	
2-Hexanone	40	U		5.0	U		5.0	U		5.0	U	
Dibromochloromethane	4.0	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromoethane	4.0	U		0.50	U		0.50	U		0.50	U	
Chlorobenzene	4.0	U		0.50	U		0.50	U		0.50	U	
Ethylbenzene	4.0	U		0.50	U		0.50	U		0.50	U	
o-Xylene	4.0	UJ	D	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D
m,p-Xylene	4.0	U		0.50	U		0.50	U		0.50	U	
Styrene	4.0	UJ	D	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D
Bromoform	4.0	U		0.50	U		0.50	U		0.50	U	
Isopropylbenzene	4.0	U		0.50	U		0.50	U		0.50	U	
1,1,2,2-Tetrachloroethane	4.0	U		0.50	U		0.50	U		0.50	U	
1,3-Dichlorobenzene	4.0	U		0.50	U		0.50	U		0.50	U	
1,4-Dichlorobenzene	4.0	U		0.50	U		0.50	U		0.50	U	
1,2-Dichlorobenzene	4.0	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromo-3-chloropropane	4.0	U		0.50	U		0.50	U		0.50	U	
1,2,4-Trichlorobenzene	4.0	U		0.50	U		0.50	U		0.50	U	
1,2,3-Trichlorobenzene	4.0	U		0.50	U		0.50	U		0.50	U	

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**Y8AS1 AAP-GW-06G Field_Sample Water/LOW 1.0 ug/L**			**Y8AS2 AAP-GW-07P Field_Sample Water/LOW 1.0 ug/L**			**Y8AS3 AAP-GW-07G Field_Sample Water/LOW 1.0 ug/L**			**Y8AS4 AAP-GW-08P Field_Sample Water/LOW 1.0 ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Vinyl chloride	0.50	U		0.50	U		0.50	U		0.50	U	
Bromomethane	0.50	U		0.50	UJ	E	0.50	U		0.50	U	
Chloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Trichlorofluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Acetone	5.0	U	C	5.0	U	C	5.0	U		5.0	U	
Carbon disulfide	0.50	U		0.50	U		0.50	U		0.50	U	
Methyl acetate	0.50	U		0.50	U		0.50	U		0.50	U	
Methylene chloride	0.50	U		0.50	U	C	0.50	U		0.50	U	
trans-1,2-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
Methyl tert-butyl ether	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
cis-1,2-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
2-Butanone	5.0	U		5.0	U		5.0	U		5.0	U	
Bromochloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloroform	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,1-Trichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Cyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
Carbon tetrachloride	0.50	U		0.50	U		0.50	U		0.50	U	
Benzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**Y8AS1 AAP-GW-06G Field_Sample Water/LOW 1.0 ug/L**			**Y8AS2 AAP-GW-07P Field_Sample Water/LOW 1.0 ug/L**			**Y8AS3 AAP-GW-07G Field_Sample Water/LOW 1.0 ug/L**			**Y8AS4 AAP-GW-08P Field_Sample Water/LOW 1.0 ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
Methylcyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloropropane	0.50	U		0.50	U		0.50	U		0.50	U	
Bromodichloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
cis-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U		0.50	U	
4-Methyl-2-pentanone	5.0	U		5.0	U		5.0	U		5.0	U	
Toluene	0.50	U		0.50	U	C	0.50	U	H	0.50	U	
trans-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2-Trichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Tetrachloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
2-Hexanone	5.0	U		5.0	U		5.0	U		5.0	U	
Dibromochloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromoethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chlorobenzene	0.50	U		0.50	U		0.50	U	H	0.50	U	
Ethylbenzene	0.50	U		0.50	U		0.50	U		0.50	U	
o-Xylene	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D
m,p-Xylene	0.50	U		0.50	U		0.50	U		0.50	U	
Styrene	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D
Bromoform	0.50	U		0.50	U		0.50	U		0.50	U	
Isopropylbenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2,2-Tetrachloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,3-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,4-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromo-3-chloropropane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2,4-Trichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2,3-Trichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample **Location** **Type** **Matrix/Level** **Dilution Factor** **% Moisture** **Units**	**Y8AS5 D2** **AAP-GW-08G** **Field_Sample** **Water/LOW** **1.0** **ug/L**			**Y8AS6** **AAP-GW-09P** **Field_Sample** **Water/LOW** **5.0** **ug/L**			**Y8AS7** **AAP-GW-09G** **Field_Sample** **Water/LOW** **1.0** **ug/L**			**Y8AS9 D1** **AAP-GW-10G** **Field_Sample** **Water/LOW** **20** **ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	0.50	UJ	F	2.5	U		0.50	U		10	U	
Chloromethane	0.50	UJ	F	2.5	U		0.50	U		10	U	
Vinyl chloride	0.50	U		2.5	U		0.50	U		10	U	
Bromomethane	0.50	UJ	F	2.5	UJ	E	0.50	U		10	U	
Chloroethane	0.50	UJ	F	2.5	U		0.50	U		10	U	
Trichlorofluoromethane	0.50	U		2.5	U		0.50	U		10	U	
1,1-Dichloroethene	0.50	U		2.5	U		0.50	U		10	U	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U		2.5	U		0.50	U		10	U	
Acetone	5.0	U		25	U		5.0	U		100	U	
Carbon disulfide	0.50	UJ	F	2.5	U		0.50	U		10	U	
Methyl acetate	0.50	U		2.5	U		0.50	U		10	U	
Methylene chloride	0.50	U		2.5	U		0.50	U		10	U	
trans-1,2-Dichloroethene	0.91			2.5	U		0.50	U		16		
Methyl tert-butyl ether	0.50	U		600		I	0.50	U		10	U	
1,1-Dichloroethane	0.50	U		2.5	U		0.50	U		10	U	
cis-1,2-Dichloroethene	4.3			2.5	U		0.50	U		170		
2-Butanone	5.0	U		25	U		5.0	U		100	U	
Bromochloromethane	0.50	U		2.5	U		0.50	U		10	U	
Chloroform	0.50	U		2.5	U		0.50	U		10	U	
1,1,1-Trichloroethane	0.50	U		2.5	U		0.50	U		10	U	
Cyclohexane	0.50	U		2.5	U		0.50	U		10	U	
Carbon tetrachloride	0.50	U		2.5	U		0.50	U		10	U	
Benzene	0.50	U		2.5	U		0.50	U		10	U	
1,2-Dichloroethane	0.50	U		2.5	U		0.50	U		10	U	

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	Y8AS5 D2 AAP-GW-08G Field_Sample Water/LOW 1.0 ug/L			Y8AS6 AAP-GW-09P Field_Sample Water/LOW 5.0 ug/L			Y8AS7 AAP-GW-09G Field_Sample Water/LOW 1.0 ug/L			Y8AS9 D1 AAP-GW-10G Field_Sample Water/LOW 20 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	39		G,I	2.5	U		0.50	U		510		I
Methylcyclohexane	0.50	U		2.5	U		0.50	U		10	U	
1,2-Dichloropropane	0.50	U		2.5	U		0.50	U		10	U	
Bromodichloromethane	0.50	U		2.5	U		0.50	U		10	U	
cis-1,3-Dichloropropene	0.50	U		2.5	U		0.50	U		10	U	
4-Methyl-2-pentanone	5.0	U		25	U		5.0	U		100	U	
Toluene	0.50	U		2.5	U		0.50	U		10	U	
trans-1,3-Dichloropropene	0.50	U		2.5	U		0.50	U		10	U	
1,1,2-Trichloroethane	0.50	U		2.5	U		0.50	U		10	U	
Tetrachloroethene	0.50	U		2.5	U		0.50	U		10	U	
2-Hexanone	5.0	U		25	U		5.0	U		100	U	
Dibromochloromethane	0.50	U		2.5	U		0.50	U		10	U	
1,2-Dibromoethane	0.50	U		2.5	U		0.50	U		10	U	
Chlorobenzene	0.50	U		2.5	U		0.50	U		10	U	
Ethylbenzene	0.50	U		2.5	U		0.50	U		10	U	
o-Xylene	0.50	UJ	D	2.5	UJ	D	0.50	UJ	D	10	UJ	D
m,p-Xylene	0.50	U		2.5	U		0.50	U		10	U	
Styrene	0.50	UJ	D	2.5	UJ	D	0.50	UJ	D	10	UJ	D
Bromoform	0.50	U		2.5	U		0.50	U		10	U	
Isopropylbenzene	0.50	U		2.5	U		0.50	U		10	U	
1,1,2,2-Tetrachloroethane	0.50	U		2.5	U		0.50	U		10	U	
1,3-Dichlorobenzene	0.50	U		2.5	U		0.50	U		10	U	
1,4-Dichlorobenzene	0.50	U		2.5	U		0.50	U		10	U	
1,2-Dichlorobenzene	0.50	U		2.5	U		0.50	U		10	U	
1,2-Dibromo-3-chloropropane	0.50	U		2.5	U		0.50	U		10	U	
1,2,4-Trichlorobenzene	0.50	U		2.5	U		0.50	U		10	U	
1,2,3-Trichlorobenzene	0.50	U		2.5	U		0.50	U		10	U	

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
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Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	VBLK1X Method_Blank Water/TRACE 1.0 ug/L			VBLK2A Method_Blank Water/TRACE 1.0 ug/L			VBLK2C Method_Blank Water/TRACE 1.0 ug/L			VBLK2E Method_Blank Water/TRACE 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Vinyl chloride	0.50	U		0.50	U		0.50	U		0.50	U	
Bromomethane	0.50	U		0.50	U		0.50	UJ	E	0.50	U	
Chloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Trichlorofluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Acetone	5.1			5.0	U		6.2			5.8		
Carbon disulfide	0.50	U		0.50	U		0.50	U		0.50	U	
Methyl acetate	0.50	U		0.50	U		0.50	U		0.50	U	
Methylene chloride	0.37	J	B	0.50	U		0.18	J	B	0.50	U	
trans-1,2-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
Methyl tert-butyl ether	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
cis-1,2-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
2-Butanone	5.0	U		5.0	U		5.0	U		5.0	U	
Bromochloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloroform	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,1-Trichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Cyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
Carbon tetrachloride	0.50	U		0.50	U		0.50	U		0.50	U	
Benzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	VBLK1X Method_Blank Water/TRACE 1.0 ug/L			VBLK2A Method_Blank Water/TRACE 1.0 ug/L			VBLK2C Method_Blank Water/TRACE 1.0 ug/L			VBLK2E Method_Blank Water/TRACE 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
Methylcyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloropropane	0.50	U		0.50	U		0.50	U		0.50	U	
Bromodichloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
cis-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U		0.50	U	
4-Methyl-2-pentanone	5.0	U		5.0	U		5.0	U		5.0	U	
Toluene	0.50	U		0.50	U		0.15	J	B	0.16	J	B
trans-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2-Trichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Tetrachloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
2-Hexanone	5.0	U		5.0	U		5.0	U		5.0	U	
Dibromochloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromoethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
Ethylbenzene	0.50	U		0.50	U		0.50	U		0.50	U	
o-Xylene	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D
m,p-Xylene	0.50	U		0.50	U		0.50	U		0.50	U	
Styrene	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D	0.50	UJ	D
Bromoform	0.50	U		0.50	U		0.50	U		0.50	U	
Isopropylbenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2,2-Tetrachloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,3-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,4-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromo-3-chloropropane	0.44	J	B	0.48	J	B	0.50	U		0.28	J	B
1,2,4-Trichlorobenzene	0.50	U		0.50	U		0.13	J	B	0.50	UJ	
1,2,3-Trichlorobenzene	0.33	J	B	0.34	J	B	0.27	J	B	0.31	J	B

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**VBLK3J Method_Blank Water/TRACE 1.0 ug/L**			**VHBLK01 Storage_Blank Water/TRACE 1.0 ug/L**								
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	0.50	U		0.50	U							
Chloromethane	0.50	U		0.50	U							
Vinyl chloride	0.50	U		0.50	U							
Bromomethane	0.50	U		0.13	J	B						
Chloroethane	0.50	U		0.50	U							
Trichlorofluoromethane	0.50	U		0.50	U							
1,1-Dichloroethene	0.50	U		0.11	J	B						
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U		0.50	U							
Acetone	5.0	U		0.12	J	B						
Carbon disulfide	0.50	U		0.50	U							
Methyl acetate	0.50	U		0.50	U							
Methylene chloride	0.13	J	B	0.19	J	B						
trans-1,2-Dichloroethene	0.50	U		0.50	U							
Methyl tert-butyl ether	0.50	U		0.50	U							
1,1-Dichloroethane	0.50	U		0.50	U							
cis-1,2-Dichloroethene	0.50	U		0.50	U							
2-Butanone	5.0	U		5.0	U							
Bromochloromethane	0.50	U		0.50	U							
Chloroform	0.50	U		0.50	U							
1,1,1-Trichloroethane	0.50	U		0.50	U							
Cyclohexane	0.50	U		0.50	U							
Carbon tetrachloride	0.50	U		0.50	U							
Benzene	0.50	U		0.50	U							
1,2-Dichloroethane	0.50	UJ	E	0.50	UJ	E						

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AQ5 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**VBLK3J Method_Blank Water/TRACE 1.0 ug/L**			**VHBLK01 Storage_Blank Water/TRACE 1.0 ug/L**								
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	0.50	U		0.50	U							
Methylcyclohexane	0.50	U		0.50	U							
1,2-Dichloropropane	0.50	U		0.50	U							
Bromodichloromethane	0.50	U		0.50	U							
cis-1,3-Dichloropropene	0.50	U		0.50	U							
4-Methyl-2-pentanone	5.0	U		5.0	U							
Toluene	0.50	U		0.50	U							
trans-1,3-Dichloropropene	0.50	U		0.50	U							
1,1,2-Trichloroethane	0.50	U		0.50	U							
Tetrachloroethene	0.50	U		0.50	U							
2-Hexanone	5.0	U		5.0	U							
Dibromochloromethane	0.50	U		0.50	U							
1,2-Dibromoethane	0.50	U		0.50	U							
Chlorobenzene	0.50	U		0.50	U							
Ethylbenzene	0.50	U		0.50	U							
o-Xylene	0.50	U		0.50	U							
m,p-Xylene	0.50	U		0.50	U							
Styrene	0.50	U		0.50	U							
Bromoform	0.50	U		0.50	U							
Isopropylbenzene	0.50	U		0.50	U							
1,1,2,2-Tetrachloroethane	0.50	U		0.50	U							
1,3-Dichlorobenzene	0.50	U		0.50	U							
1,4-Dichlorobenzene	0.50	U		0.50	U							
1,2-Dichlorobenzene	0.50	U		0.50	U							
1,2-Dibromo-3-chloropropane	0.50	U		0.50	U							
1,2,4-Trichlorobenzene	0.50	U		0.50	U							
1,2,3-Trichlorobenzene	0.50	U		0.50	U							

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: Y8AR0

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: _______ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.03

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19234

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. _______ Date Analyzed: 04/12/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown-01~~	~~10.83~~	~~12~~	~~J~~
02	000111-71-7	Unknown-02 Heptanal	15.07	0.86	NJ
03	000124-13-0	Octanal	16.45	2.7	NJ
04		~~Unknown-03~~ $C_8H_{18}O$ Alcohol	16.62	1.5	NJ
05	000124-19-6	Nonanal	17.56	5.3	NJ
06					
07		SL, 9/12/12			
08					
09					
10					
11					
12					
13					
14					
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16					
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19					
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21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
Y8AR1

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: _______ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.04

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19235

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. _______ Date Analyzed: 04/12/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	~~001825-61-2~~	~~Silane, methoxytrimethyl~~	~~4.87~~	~~0.68~~	~~NJ~~
02		~~Unknown 01~~	~~7.28~~	~~2.0~~	~~J~~
03		~~Unknown 02~~	~~10.83~~	~~13~~	~~J~~
04	000124-19-6	~~Unknown 03~~ Nonanal	17.56	1.1	NJ
05					
06		SL 9/12/12			
07					
08					
09					
10					
11					
12					
13					
14					
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25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
Y8AR3

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: _______ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.05

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19227

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. _______ Date Analyzed: 04/12/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000106-97-8	~~Unknown-01~~ Butane	2.17	1.3	JN
02	000078-78-4	Butane, 2-methyl-	2.73	1.5	NJ
03	000060-29-7	Ethyl ether	3.51	0.76	NJ
04		~~Unknown-02~~	~~3.52~~	~~0.57~~	~~J~~
05	000109-67-1	1-Pentene	4.32	8.1	NJ
06	000108-20-3	Diisopropyl ether	5.83	18	NJ
07		~~Unknown-03~~ C_6H_{12} Cyclic Alkane	6.03	0.68	J
08		~~Unknown-04~~	~~6.03~~	~~2.6~~	~~J~~
09	000110-98-5	~~Unknown-05~~ 2-Propanol, 1,1'-oxybis-	6.20	1.7	NJ
10		~~Unknown-06~~	~~7.28~~	~~1.0~~	~~J~~
11	000109-99-9	~~Unknown-07~~ Furan, tetrahydro-	7.44	0.65	NJ
12	000462-95-3	~~Unknown-08~~ Methane, diethoxy-	8.36	48	NJ
13	000628-81-9	Butane, 1-ethoxy-	8.57	24	NJ
14		~~Unknown-09~~	~~10.02~~	~~9.7~~	~~J~~
15					
16		SL, 9/12/12.			
17					
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30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
Y8AR4

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: _______ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.06

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19229

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. _______ Date Analyzed: 04/12/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown 01~~ C_4H_8 Alkene	2.18	0.86	NJ
02		~~Unknown 02~~	~~2.94~~	~~1.6~~	~~J~~
03		~~Unknown 03~~	~~7.27~~	~~1.6~~	~~J~~
04		~~Unknown 04~~	~~10.82~~	~~9.5~~	~~J~~
05		~~Unknown 05~~	~~18.71~~	~~0.67~~	~~J~~
06					
07		SL 9/12/12			
08					
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29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
Y8AR8

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: ________ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.10

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19236

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. ________ Date Analyzed: 04/12/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown-01~~	~~10.83~~	~~13~~	~~J~~
02	000124-13-0	~~Unknown-02~~ Octanal	16.45	0.62	NJ
03		~~Unknown-03~~ $C_8H_{18}O$ Alcohol	16.62	1.1	J
04	000124-19-6	~~Unknown-04~~ Nonanal	17.56	1.1	NJ
05					
06		SL, 9/12/12			
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25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
Y8AR9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: ______ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.11

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19242

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. _______ Date Analyzed: 04/12/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown 01~~	~~10.82~~	~~13~~	~~JB~~
02	000124-19-6	~~Unknown 02~~ Nonanal	17.56	0.73	NJ
03					
04		SL, 9/12/12.			
05					
06					
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27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
Y8AS0

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: _______ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.12

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19243

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. _______ Date Analyzed: 04/12/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown 01~~	~~2.92~~	~~1.5~~	~~J~~
02		~~Unknown 02~~	~~10.83~~	~~10~~	~~J~~
03	000124-19-6	Nonanal	17.56	0.94	NJ
04					
05		SL, 9/12/12.			
06					
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24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
Y8AS1

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: ______ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.13

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19244

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. ______ Date Analyzed: 04/12/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown 01~~	~~2.93~~	~~1.8~~	~~J~~
02		~~Unknown 02~~	~~10.83~~	~~13~~	~~J~~
03	000124-19-6	~~Unknown 03~~ Nonanal	17.55	0.53	NJ
04					
05		SL, 9/13/12			
06					
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23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y8AS5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: ______ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.17

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19258

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. ______ Date Analyzed: 04/13/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown 01~~	~~10.83~~	~~8.1~~	~~J~~
02	000124-19-6	~~Unknown 02~~ Nonanal	17.56	0.73	NJ
03					
04		SL, 9/12/12 .			
05					
06					
07					
08					
09					
10					
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23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
Y8AS7

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: ________ SDG No.: Y8AQ5

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4806.19

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: G19248

Level: (TRACE or LOW/MED) TRACE Date Received: 04/06/2012

% Moisture: not dec. ________ Date Analyzed: 04/13/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown 01~~	~~7.20~~	~~0.71~~	~~J~~
02		~~Unknown 02~~	~~10.83~~	~~12~~	~~J~~
03	000124-19-6	Nonanal	17.56	0.59	NJ
04					
05		SL, 9/12/12.			
06					
07					
08					
09					
10					
11					
12					
13					
14					
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18					
19					
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21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

ICF International / Laboratory Data Consultants
Environmental Services Assistance Team, Region 9
1337 South 46th Street, Building 201, Richmond, CA 94804-4698
Phone: (510) 412-2300; Fax: (510) 412-2304.

MEMORANDUM

TO: Matt Mitguard, Site Manager
Brownfield and Site Assessment Section, SFD-6-1

THROUGH: Rose Fong, ESAT Task Order Manager (TOM)
Quality Assurance (QA) Program, MTS-3

FROM: Kathy O'Brien, Data Review Task Manager
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041
Technical Direction Form No.: 01306016

DATE: September 11, 2012

SUBJECT: Review of Analytical Data, Tier 3

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

Site:	Atlantic Ave South Gate
Site Account No.:	09 ZZ QB00
CERCLIS ID No.:	CAN000908953
Case No.:	42404
SDG No.:	Y8AT6
Laboratory:	KAP Technologies, Inc. (KAP)
Analysis:	1,4-Dioxane by Semivolatile
Samples:	1 Water Sample (see Case Summary)
Collection Date:	April 3, 2012
Reviewer:	Santiago Lee, ESAT/Laboratory Data Consultants (LDC)

This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.

If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.

Attachment

cc: Ray Flores, CLP PO USEPA Region 6
Steve Remaley, CLP PO USEPA Region 9

CLP PO: [X] FYI [ ] Action

SAMPLING ISSUES: [X] Yes [ ] No

Data Validation Report - Tier 3

Case No.: 42404
SDG No.: Y8AT6
Site: Atlantic Ave South Gate
Laboratory: KAP Technologies, Inc. (KAP)
Reviewer: Santiago Lee, ESAT/LDC
Date: September 11, 2012

I. CASE SUMMARY

Sample Information

Samples:	Y8AT6
Concentration and Matrix:	Low Concentration Water
Analysis:	1,4-Dioxane by Semivolatile
Statement of Work (SOW):	SOM01.2 and Modification Reference No. 1679.2
Collection Date:	April 3, 2012
Sample Receipt Date:	April 6, 2012
Extraction Date:	April 10, 2012
Analysis Date:	April 20, 2012

Field QC

Field Blanks (FB):	Not Provided
Equipment Blanks (EB):	Not Provided
Background Samples (BG):	Not Provided in this SDG
Field Duplicates (D1):	Y8AS5 (in SDG Y8AQ5) and Y8AT6

Laboratory QC

Method Blanks & Associated Samples:

SBLK39:	Y8AT6

Tables

1A:	Analytical Results with Qualifications
1B:	Data Qualifier Definitions for Organic Data Review

CLP PO Action

None.

Sampling Issues

1. The laboratory indicated on the sample log-in sheet that one amber bottle for sample Y8AT6 was received broken. There was enough sample volume in the other bottle for analysis.

2. The sampler signature is missing on traffic report and chain of custody records (TR/COCs).

Additional Comments

The sample volume and quantitation limit for Y8AT6 were reported incorrectly on Form 1D. The laboratory submitted revised Form 1D upon request, on 08/31/12; see Table 1A for the corrected quantitation limit.

The following information was missing from the data package:

- Qedit quantitation reports for 1,4-dichloroethane-d4 and 1,4-dioxane-d8 in SSTD080AW and 1,4-dioxane in SSTD080AW and SSTD002AW; and
- Preparation logbook page for surrogate solution.

The laboratory submitted the missing pages upon request, on 08/31/12. All standards associated with sample extraction and analysis were analyzed before the expiration date.

The laboratory indicated that manual integrations were performed on calibrations. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.

This report was prepared in accordance with the following documents:

- *Request for Quote (RFQ) for Modified Analysis*, Modification Reference Number: 1679.2, September 11, 2009;
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration*, SOM01.1, May 2005;
- *Modifications Updating SOM01.1 to SOM01.2*, Amended April 11, 2007; and
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, June 2008.

For technical definitions, refer to *Exhibit G (Glossary of Terms), USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration*, SOM01.1, May 2005.

II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

	Parameter	Acceptable	Comment
1	Holding Time/Preservation	Yes	
2	GC/MS Tune/GC Performance	Yes	
3	Initial Calibration	Yes	
4	Continuing Calibration Verification (CCV)	Yes	
5	Laboratory Blanks	Yes	
6	Field Blanks	N/A	
7	Deuterated Monitoring Compounds (DMCs)	Yes	
8	Matrix Spike/Matrix Spike Duplicates (MS/MSDs)	N/A	
9	GPC Performance Check	N/A	
10	Internal Standards	Yes	
11	Compound Identification	Yes	
12	Compound Quantitation	Yes	

13	System Performance	Yes
14	Field Duplicate Sample Analysis	Yes

N/A = Not Applicable

III. VALIDITY AND COMMENTS

The data reviewed were found to be in compliance with the National Functional Guidelines criteria and the Modification Reference No. 1679.2; no other issues requiring qualification of data were observed.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AT6 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix Dilution Factor % Moisture Units	**Y8AT6 AAP-GW-11G Field_Sample Water/LOW 1.0 ug/L**			**SBLK39 Method_Blank Water/LOW 1.0 ug/L**								
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
1,4-Dioxane	2.4	U		2.0	U							

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.

U The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.

J The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.

R The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

ICF International / Laboratory Data Consultants
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1337 South 46th Street, Building 201, Richmond, CA 94804-4698
Phone: (510) 412-2300; Fax: (510) 412-2304.

MEMORANDUM

TO: Matt Mitguard, Site Manager
Brownfield and Site Assessment Section, SFD-6-1

THROUGH: Rose Fong, ESAT Task Order Manager (TOM)
Quality Assurance (QA) Program, MTS-3

FROM: Kathy O'Brien, Data Review Task Manager
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041
Technical Direction Form No.: 01306016

DATE: September 11, 2012

SUBJECT: Review of Analytical Data, Tier 3

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

Site:	Atlantic Ave South Gate
Site Account No.:	09 ZZ QB00
CERCLIS ID No.:	CAN000908953
Case No.:	42404
SDG No.:	Y8AT6
Laboratory:	KAP Technologies, Inc. (KAP)
Analysis:	Trace Volatiles
Samples:	9 Water Samples (see Case Summary)
Collection Date:	April 3, 4, and 9, 2012
Reviewer:	Santiago Lee, ESAT/Laboratory Data Consultants (LDC)

This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.

If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.

Attachment

cc: Ray Flores, CLP PO USEPA Region 6
Steve Remaley, CLP PO USEPA Region 9

CLP PO: [X] FYI [ ] Action

SAMPLING ISSUES: [X] Yes [ ] No

Data Validation Report - Tier 3

Case No.: 42404
SDG No.: Y8AT6
Site: Atlantic Ave South Gate
Laboratory: KAP Technologies, Inc. (KAP)
Reviewer: Santiago Lee, ESAT/LDC
Date: September 11, 2012

I. CASE SUMMARY

Sample Information

Samples:	Y8AT0 through Y8AT8
Concentration and Matrix:	Low Concentration Water
Analysis:	Trace Volatiles
Statement of Work (SOW):	SOM01.2
Collection Date:	April 3, 4, and 9, 2012
Sample Receipt Date:	April 6 and 11, 2012
Extraction Date:	Not Applicable
Analysis Date:	April 15, 20, 21, and 22, 2012

Field QC

Field Blanks (FB):	Y8AT7
Equipment Blanks (EB):	Y8AQ5 (in SDG Y8AQ5)
Trip Blanks (TB):	Not Provided
Background Samples (BG):	Not Provided in this SDG
Field Duplicates (D1):	Y8AS5 (in SDG Y8AQ5) and Y8AT6

Laboratory QC

Method Blanks & Associated Samples:

VBLK31:	Y8AT4DL, Y8AT5DL, Y8AT0, Y8AT1, Y8AT3 through Y8AT5
VBLK35:	Y8AT2MS, Y8AT2DL, Y8AT2MSD
VBLK2I:	Y8AT6 through Y8AT8, Y8AT6DL
VBLK2Y:	Y8AT2
VBLK3J:	Storage blank VHBLK01

Tables

1A:	Analytical Results with Qualifications
1B:	Data Qualifier Definitions for Organic Data Review

CLP PO Action

None.

Sampling Issues

1. The sampler signature is missing on traffic report and chain of custody records (TR/COCs).

2. The field blanks were not submitted "blind" to the laboratory since the matrix was stated as "Field QC" and "FB" was used as part of station locations on TR/COCs.

<u>Additional Comments</u>

Samples Y8AT4 and Y8AT5 were analyzed at 10-fold dilution due to high levels of target analytes. The quantitation limits listed for these samples in Table 1A have been raised to account for the dilution.

The following compounds were incorrectly reported as nondetects (i.e., false negatives):

- Methylene chloride in Y8AT2, Y8AT3, Y8AT4, Y8AT7, Y8AT8, VBLK2I, VBLK2Y, and VBLK3J;
- 1,1-Dichloroethene in Y8AT3;
- Ethylbenzene in Y8AT3;
- Toluene in Y8AT1 and VBLK2I;
- m,p-Xylene in Y8AT0 and Y8AT1;
- Bromodichloromethane and o-xylene in VBLK2I; and
- 1,2,4-Trichlorobenzene in VBLK2I and VBLK2Y.

The laboratory submitted revised data (Form Is, quantitation reports, and chromatograms) and mass spectra upon request, on 08/31/12 (see Table 1A for concentrations and Comment B).

The DMC 2-butanone-d8 recoveries for sample Y8AT2 and method blank VBLK2Y were reported incorrectly on quantitation reports. The laboratory submitted revised quantitation reports upon request, on 08/31/12.

The following information was missing from the data package:

- Qedit quantitation reports for 1,2-dichloropropane in VSTD0013A and 1,2-dichloroethane in VSTD0053J; and
- Chromatogram for VSTD0013A.

The laboratory submitted the missing pages upon request, on 08/31/12.

In addition to laboratory and field artifacts (approximate retention times of 2.0, 2.7, 2.9-3.1, 5.1, 11.0, 11.9, 16.0, and 17.6 minutes), tentatively identified compounds (TICs) were found in sample Y8AT3 (see attached Form 1J).

The laboratory indicated that manual integration was performed on calibrations. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.

This report was prepared in accordance with the following documents:

- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration,* SOM01.1, May 2005;
- *Modifications Updating SOM01.1 to SOM01.2,* Amended April 11, 2007; and

- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, June 2008.

For technical definitions, refer to *Exhibit G (Glossary of Terms)*, *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration*, SOM01.1, May 2005.

II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

	Parameter	Acceptable	Comment
1	Holding Time/Preservation	Yes	
2	GC/MS Tune/GC Performance	Yes	
3	Initial Calibration	No	C
4	Continuing Calibration Verification (CCV)	No	D
5	Laboratory Blanks	No	B
6	Field Blanks	Yes	
7	Deuterated Monitoring Compounds (DMCs)	No	E
8	Matrix Spike/Matrix Spike Duplicates (MS/MSDs)	No	G
9	Internal Standards	Yes	
10	Compound Identification	Yes	
11	Compound Quantitation	Yes	A, H
12	System Performance	Yes	
13	Field Duplicate Sample Analysis	No	F

N/A = Not Applicable

III. VALIDITY AND COMMENTS

A. The following results are qualified as estimated and flagged "J" in Table 1A.

- All detected results below the contract required quantitation limits (CRQL).

The results are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision below the quantitation limit.

B. The following results are qualified as nondetected due to method blank contamination and are flagged "U" in Table 1A.

- Acetone in sample Y8AT8
- Methylene chloride in samples Y8AT2 through Y8AT4, Y8AT7, and Y8AT8
- Toluene in sample Y8AT7

Methylene chloride was found in method blanks VBLK2I, VBLK2Y, VBLK31, and VBLK3J and storage blank VHBLK01; acetone and toluene were found in method blank VBLK2I (see Table 1A for concentrations). Results listed above are considered nondetected (U) according to the National Functional Guidelines. For sample results of acetone that are greater than CRQL but less than four times CRQL, the quantitation limits are raised to the sample results and reported as nondetected.

C. Results for the following analytes are qualified as estimated due to large percent relative standard deviations (%RSDs) in initial calibrations and are flagged “J” or “UJ” in Table 1A.

- o-Xylene and styrene in samples T8AT2 and Y8AT6 through Y8AT8 and method blanks VBLK2I and VBLK2Y

%RSDs of 32.4% and 31.2% for o-xylene and 30.7% and 32.5% for styrene were reported in 04/10/12 and 04/16/12 initial calibrations, respectively. These values exceeded the 30.0% validation criterion.

D. Results for the following analytes are qualified as estimated due to large percent differences (%Ds) in CCVs and are flagged “J” or "UJ" in Table 1A.

- 1,2,4-Trichlorobenzene and 1,2,3-trichlorobenzene in samples Y8AT0, Y8AT1, and Y8AT3 through Y8AT5 and method blank VBLK31
- 1,2-Dichloroethane in method blank VBLK3J and storage blank VHBLK01

%Ds of -36.0% and -38.8% were reported for 1,2,4-trichlorobenzene and 1,2,3-trichlorobenzene, respectively, in 04/21/12 10:03 CCV; %D of +34.4% was reported for 1,2-dichloroethane in 04/25/12 10:22 CCV. These values exceeded the ±30.0% validation criterion for opening CCVs.

E. Results for the following analytes are qualified as estimated due to low DMC recoveries and are flagged “UJ” in Table 1A.

{Chloroform-d}

- 1,1-Dichloroethane, bromochloromethane, chloroform, dibromochloromethane, and bromoform in sample Y8AT2

{trans-1,3-Dichloropropene-d4}

- cis-1,3-Dichloropropene, trans-1,3-dichloropropene, and 1,1,2-trichloroethane in sample Y8AT2

DMC recoveries outside QC limits are shown below.

Sample	DMC	% Recovery	QC Limit
Y8AT7	1,1-Dichloroethene-d2	111	55-104
Y8AT8	1,1-Dichloroethene-d2	109	55-104
Y8AT7	Chloroform-d	125	78-121
Y8AT8	Chloroform-d	126	78-121
Y8AT2	Chloroform-d	77	78-121
Y8AT7	1,2-Dichloroethane-d4	132	78-129
Y8AT8	1,2-Dichloroethane-d4	136	78-129

Sample	DMC	% Recovery	QC Limit
Y8AT2	trans-1,3-Dichloropropene-d4	69	73-121

Since qualified results are nondetected, false negatives may exist. Recoveries for DMCs 1,1-dichloroethane-d2, chloroform-d, and 1,2-dichloroethane-d4 in Y8AT7 and Y8AT8 exceeded QC limits, indicating high bias in detected results; associated sample results were not qualified because they were nondetects. Sample Y8AT2 was not re-analyzed undiluted.

F. In the analysis of the field duplicate pair, the following outlier (relative percent difference >25%) was reported.

Analyte	Y8AT6 (D1) Conc., µg/L	Y8AS5 (D1) Conc., µg/L	RPD
Trichloroethene	30	39	26.1

The effect on data quality is not known.

G. The MS recovery and relative percent difference (RPD) for 1,1-dichloroethene in QC samples Y8AT2MS and Y8AT2MSD did not meet the criteria for accuracy and precision specified in the SOW, as shown below.

	Y8AT2MS	Y8AT2MSD		QC limit	
Analyte	% Recovery	% Recovery	RPD	RPD	% Recovery
1,1-Dichloroethene	52	---	21	0-14	61-145

Results reported may indicate poor laboratory technique or matrix effects which may interfere with analysis. The effect on data quality is not known.

Recoveries and RPD for trichloroethene are not meaningful since the concentration of trichloroethene in Y8AT2 (27 ug/L) is significantly higher than the spike concentration of 5.0 ug/L.

H. Several samples (see table below) required reanalysis to obtain results within the calibration range for the indicated analytes. Results for these analytes are reported from the diluted analysis in Table 1A. Unless noted elsewhere, other results are reported from the undiluted analysis.

Sample	Dilution	Analytes
Y8AT2	8.0	cis-1,2-Dichloroethene
		Trichloroethene
Y8AT4, Y8AT5	200	cis-1,2-Dichloroethene
Y8AT6	10	Trichloroethene

Data users should note that concentrations from undiluted analysis for cis-1,2-dichloroethene (77 ug/L) and trichloroethene (47 ug/L) in Y8AT2 and for trichloroethene in Y8AT6 (46 ug/L) are significantly higher than concentrations from the diluted analysis reported in Table 1A.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AT6 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**Y8AT0 AAP-GW-38U Field_Sample Water/TRACE 1.0 ug/L**			**Y8AT1 AAP-GW-38L Field_Sample Water/TRACE 1.0 ug/L**			**Y8AT2 AAP-GW-39G Field_Sample Water/TRACE 1.0 ug/L**			**Y8AT3 AAP-GW-52G Field_Sample Water/TRACE 1.0 ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Vinyl chloride	0.50	U		0.50	U		0.50	U		0.50	U	
Bromomethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Trichlorofluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethene	0.50	U		0.50	U		0.50	U	G	0.19	J	A
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Acetone	5.0	U		5.0	U		5.5			5.0	U	
Carbon disulfide	0.50	U		0.50	U		0.50	U		0.50	U	
Methyl acetate	0.50	U		0.50	U		0.50	U		0.50	U	
Methylene chloride	0.50	U		0.50	U		0.50	U	B	0.50	U	B
trans-1,2-Dichloroethene	0.50	U		0.50	U		1.7			1.2		
Methyl tert-butyl ether	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethane	0.50	U		0.50	U		0.50	UJ	E	0.50	U	
cis-1,2-Dichloroethene	0.36	J	A	0.70			49		H	5.1		
2-Butanone	5.0	U		5.0	U		5.0	U		5.0	U	
Bromochloromethane	0.50	U		0.50	U		0.50	UJ	E	0.50	U	
Chloroform	0.50	U		0.50	U		0.50	UJ	E	0.50	U	
1,1,1-Trichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Cyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
Carbon tetrachloride	0.50	U		0.50	U		0.50	U		0.50	U	
Benzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AT6 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	Y8AT0 AAP-GW-38U Field_Sample Water/TRACE 1.0 ug/L			Y8AT1 AAP-GW-38L Field_Sample Water/TRACE 1.0 ug/L			Y8AT2 AAP-GW-39G Field_Sample Water/TRACE 1.0 ug/L			Y8AT3 AAP-GW-52G Field_Sample Water/TRACE 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	0.50	U		0.39	J	A	27		H	1.5		
Methylcyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloropropane	0.50	U		0.50	U		0.50	U		0.50	U	
Bromodichloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
cis-1,3-Dichloropropene	0.50	U		0.50	U		0.50	UJ	E	0.50	U	
4-Methyl-2-pentanone	5.0	U		5.0	U		5.0	U		5.0	U	
Toluene	0.43	J	A	0.18	J	A	2.5			0.81		
trans-1,3-Dichloropropene	0.50	U		0.50	U		0.50	UJ	E	0.50	U	
1,1,2-Trichloroethane	0.50	U		0.50	U		0.50	UJ	E	0.50	U	
Tetrachloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
2-Hexanone	5.0	U		5.0	U		5.0	U		5.0	U	
Dibromochloromethane	0.50	U		0.50	U		0.50	UJ	E	0.50	U	
1,2-Dibromoethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
Ethylbenzene	0.50	U		0.50	U		0.17	J	A	0.17	J	A
o-Xylene	0.50	U		0.50	U		0.24	J	A,C	0.29	J	A
m,p-Xylene	0.19	J	A	0.17	J	A	0.82			0.59		
Styrene	0.50	U		0.50	U		0.50	UJ	C	0.50	U	
Bromoform	0.50	U		0.50	U		0.50	UJ	E	0.50	U	
Isopropylbenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2,2-Tetrachloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,3-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,4-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromo-3-chloropropane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2,4-Trichlorobenzene	0.50	UJ	D	0.50	UJ	D	0.50	U		0.50	UJ	D
1,2,3-Trichlorobenzene	0.50	UJ	D	0.50	UJ	D	0.50	U		0.50	UJ	D

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AT6 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**Y8AT4 AAP-GW-56G Field_Sample Water/TRACE 10 ug/L**			**Y8AT5 AAP-GW-57G Field_Sample Water/TRACE 10 ug/L**			**Y8AT6 AAP-GW-11G Field_Sample Water/TRACE 1.0 ug/L**			**Y8AT7 FB AAP-FB-001 Field_Sample Water/TRACE 1.0 ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	5.0	U		5.0	U		0.50	U		0.50	U	
Chloromethane	5.0	U		5.0	U		0.50	U		0.50	U	
Vinyl chloride	5.0	U		5.0	U		0.50	U		0.50	U	
Bromomethane	5.0	U		5.0	U		0.50	U		0.50	U	
Chloroethane	5.0	U		5.0	U		0.50	U		0.50	U	
Trichlorofluoromethane	5.0	U		5.0	U		0.50	U		0.50	U	
1,1-Dichloroethene	5.0	U		5.0	U		0.50	U		0.50	U	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U		5.0	U		0.50	U		0.50	U	
Acetone	50	U		50	U		5.0	U		5.0	U	
Carbon disulfide	5.0	U		5.0	U		0.50	U		0.50	U	
Methyl acetate	5.0	U		5.0	U		0.50	U		0.50	U	
Methylene chloride	5.0	U	B	5.0	U		0.50	U		0.50	U	B
trans-1,2-Dichloroethene	23			22			0.97			0.50	U	
Methyl tert-butyl ether	5.0	U		5.0	U		0.50	U		0.50	U	
1,1-Dichloroethane	5.0	U		5.0	U		0.50	U		0.50	U	
cis-1,2-Dichloroethene	860		H	830		H	4.3			0.50	U	
2-Butanone	50	U		50	U		5.0	U		5.0	U	
Bromochloromethane	5.0	U		5.0	U		0.50	U		0.50	U	
Chloroform	5.0	U		5.0	U		0.50	U		0.50	U	
1,1,1-Trichloroethane	5.0	U		5.0	U		0.50	U		0.50	U	
Cyclohexane	5.0	U		5.0	U		0.50	U		0.50	U	
Carbon tetrachloride	5.0	U		5.0	U		0.50	U		0.50	U	
Benzene	5.0	U		5.0	U		0.50	U		0.50	U	
1,2-Dichloroethane	5.0	U		5.0	U		0.50	U		0.50	U	

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AT6 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	**Y8AT4 AAP-GW-56G Field_Sample Water/TRACE 10 ug/L**			**Y8AT5 AAP-GW-57G Field_Sample Water/TRACE 10 ug/L**			**Y8AT6 AAP-GW-11G Field_Sample Water/TRACE 1.0 ug/L**			**Y8AT7 FB AAP-FB-001 Field_Sample Water/TRACE 1.0 ug/L**		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	140			150			30		F,H	0.50	U	
Methylcyclohexane	5.0	U		5.0	U		0.50	U		0.50	U	
1,2-Dichloropropane	5.0	U		5.0	U		0.50	U		0.50	U	
Bromodichloromethane	5.0	U		5.0	U		0.50	U		0.50	U	
cis-1,3-Dichloropropene	5.0	U		5.0	U		0.50	U		0.50	U	
4-Methyl-2-pentanone	50	U		50	U		5.0	U		5.0	U	
Toluene	5.0	U		5.0	U		0.50	U		0.50	U	B
trans-1,3-Dichloropropene	5.0	U		5.0	U		0.50	U		0.50	U	
1,1,2-Trichloroethane	5.0	U		5.0	U		0.50	U		0.50	U	
Tetrachloroethene	5.0	U		5.0	U		0.50	U		0.50	U	
2-Hexanone	50	U		50	U		5.0	U		5.0	U	
Dibromochloromethane	5.0	U		5.0	U		0.50	U		0.50	U	
1,2-Dibromoethane	5.0	U		5.0	U		0.50	U		0.50	U	
Chlorobenzene	5.0	U		5.0	U		0.50	U		0.50	U	
Ethylbenzene	5.0	U		5.0	U		0.50	U		0.50	U	
o-Xylene	5.0	U		5.0	U		0.50	UJ	C	0.50	UJ	C
m,p-Xylene	5.0	U		5.0	U		0.50	U		0.50	U	
Styrene	5.0	U		5.0	U		0.50	UJ	C	0.50	UJ	C
Bromoform	5.0	U		5.0	U		0.50	U		0.50	U	
Isopropylbenzene	5.0	U		5.0	U		0.50	U		0.50	U	
1,1,2,2-Tetrachloroethane	5.0	U		5.0	U		0.50	U		0.50	U	
1,3-Dichlorobenzene	5.0	U		5.0	U		0.50	U		0.50	U	
1,4-Dichlorobenzene	5.0	U		5.0	U		0.50	U		0.50	U	
1,2-Dichlorobenzene	5.0	U		5.0	U		0.50	U		0.50	U	
1,2-Dibromo-3-chloropropane	5.0	U		5.0	U		0.50	U		0.50	U	
1,2,4-Trichlorobenzene	5.0	UJ	D	5.0	UJ	D	0.50	U		0.50	U	
1,2,3-Trichlorobenzene	5.0	UJ	D	5.0	UJ	D	0.50	U		0.50	U	

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AT6 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	Y8AT8 FB AAP-FB-002 Field_Sample Water/TRACE 1.0 ug/L			VBLK2I Method_Blank Water/TRACE 1.0 ug/L			VBLK2Y Method_Blank Water/TRACE 1.0 ug/L			VBLK31 Method_Blank Water/TRACE 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Vinyl chloride	0.50	U		0.50	U		0.50	U		0.50	U	
Bromomethane	0.50	U		0.50	U		0.50	U		0.30	J	A
Chloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Trichlorofluoromethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Acetone	6.8	U	B	3.5	J	A	5.0	U		5.0	U	
Carbon disulfide	0.50	U		0.50	U		0.50	U		0.50	U	
Methyl acetate	0.50	U		0.50	U		0.50	U		0.50	U	
Methylene chloride	0.50	U	B	0.18	J	A	0.13	J	A	0.31	J	A
trans-1,2-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
Methyl tert-butyl ether	0.50	U		0.50	U		0.50	U		0.50	U	
1,1-Dichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
cis-1,2-Dichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
2-Butanone	5.0	U		5.0	U		5.0	U		5.0	U	
Bromochloromethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chloroform	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,1-Trichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Cyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
Carbon tetrachloride	0.50	U		0.50	U		0.50	U		0.50	U	
Benzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AT6 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	Y8AT8 FB AAP-FB-002 Field_Sample Water/TRACE 1.0 ug/L			VBLK2I Method_Blank Water/TRACE 1.0 ug/L			VBLK2Y Method_Blank Water/TRACE 1.0 ug/L			VBLK31 Method_Blank Water/TRACE 1.0 ug/L		
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	0.50	U		0.50	U		0.50	U		0.50	U	
Methylcyclohexane	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichloropropane	0.50	U		0.50	U		0.50	U		0.50	U	
Bromodichloromethane	0.50	U		0.86			0.50	U		0.50	U	
cis-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U		0.50	U	
4-Methyl-2-pentanone	5.0	U		5.0	U		5.0	U		5.0	U	
Toluene	0.50	U		0.12	J	A	0.50	U		0.50	U	
trans-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2-Trichloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
Tetrachloroethene	0.50	U		0.50	U		0.50	U		0.73		
2-Hexanone	5.0	U		5.0	U		5.0	U		5.0	U	
Dibromochloromethane	0.50	U		0.45	J	A	0.50	U		0.50	U	
1,2-Dibromoethane	0.50	U		0.50	U		0.50	U		0.50	U	
Chlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
Ethylbenzene	0.50	U		0.50	U		0.50	U		0.50	U	
o-Xylene	0.50	UJ	C	0.12	J	A,C	0.50	UJ	C	0.50	U	
m,p-Xylene	0.50	U		0.50	U		0.50	U		0.50	U	
Styrene	0.50	UJ	C	0.50	UJ	C	0.50	UJ	C	0.50	U	
Bromoform	0.50	U		0.50	U		0.50	U		0.50	U	
Isopropylbenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,1,2,2-Tetrachloroethane	0.50	U		0.50	U		0.50	U		0.50	U	
1,3-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,4-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dichlorobenzene	0.50	U		0.50	U		0.50	U		0.50	U	
1,2-Dibromo-3-chloropropane	0.50	U		0.50	U		0.30	J	A	0.50	U	
1,2,4-Trichlorobenzene	0.50	U		0.14	J	A	0.11	J	A	0.50	UJ	D
1,2,3-Trichlorobenzene	0.50	U		0.27	J	A	0.23	J	A	0.29	J	A,D

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AT6 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	VBLK35 Method_Blank Water/TRACE 1.0 ug/L			VBLK3J Method_Blank Water/TRACE 1.0 ug/L			VHBLK01 Storage_Blank Water/TRACE 1.0 ug/L					
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Dichlorodifluoromethane	0.50	U		0.50	U		0.50	U				
Chloromethane	0.50	U		0.50	U		0.50	U				
Vinyl chloride	0.50	U		0.50	U		0.50	U				
Bromomethane	0.50	U		0.50	U		0.50	U				
Chloroethane	0.50	U		0.50	U		0.50	U				
Trichlorofluoromethane	0.50	U		0.50	U		0.50	U				
1,1-Dichloroethene	0.50	U		0.50	U		0.50	U				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U		0.50	U		0.50	U				
Acetone	5.0	U		5.0	U		5.0	U				
Carbon disulfide	0.50	U		0.50	U		0.50	U				
Methyl acetate	0.50	U		0.50	U		0.50	U				
Methylene chloride	0.50	U		0.13	J	A	0.24	J	A			
trans-1,2-Dichloroethene	0.50	U		0.50	U		0.50	U				
Methyl tert-butyl ether	0.50	U		0.50	U		0.50	U				
1,1-Dichloroethane	0.50	U		0.50	U		0.50	U				
cis-1,2-Dichloroethene	0.50	U		0.50	U		0.50	U				
2-Butanone	5.0	U		5.0	U		5.0	U				
Bromochloromethane	0.50	U		0.50	U		0.50	U				
Chloroform	0.50	U		0.50	U		0.50	U				
1,1,1-Trichloroethane	0.50	U		0.50	U		0.50	U				
Cyclohexane	0.50	U		0.50	U		0.50	U				
Carbon tetrachloride	0.50	U		0.50	U		0.50	U				
Benzene	0.50	U		0.50	U		0.50	U				
1,2-Dichloroethane	0.50	U		0.50	UJ	D	0.50	UJ	D			

Lab KAP (KAP Technologies, Inc.) **SDG** Y8AT6 **Case** 42404 **Site** Atlantic Ave South Gate **SOW** SOM01.2

Sample Location Type Matrix/Level Dilution Factor % Moisture Units	VBLK35 Method_Blank Water/TRACE 1.0 ug/L			VBLK3J Method_Blank Water/TRACE 1.0 ug/L			VHBLK01 Storage_Blank Water/TRACE 1.0 ug/L					
Compound	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**	**Result**	**Flag**	**Com**
Trichloroethene	0.50	U		0.50	U		0.50	U				
Methylcyclohexane	0.50	U		0.50	U		0.50	U				
1,2-Dichloropropane	0.50	U		0.50	U		0.50	U				
Bromodichloromethane	0.50	U		0.50	U		0.50	U				
cis-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U				
4-Methyl-2-pentanone	5.0	U		5.0	U		5.0	U				
Toluene	0.50	U		0.50	U		0.50	U				
trans-1,3-Dichloropropene	0.50	U		0.50	U		0.50	U				
1,1,2-Trichloroethane	0.50	U		0.50	U		0.50	U				
Tetrachloroethene	0.50	U		0.50	U		0.50	U				
2-Hexanone	5.0	U		5.0	U		5.0	U				
Dibromochloromethane	0.50	U		0.50	U		0.50	U				
1,2-Dibromoethane	0.50	U		0.50	U		0.50	U				
Chlorobenzene	0.50	U		0.50	U		0.50	U				
Ethylbenzene	0.50	U		0.50	U		0.50	U				
o-Xylene	0.50	U		0.50	U		0.50	U				
m,p-Xylene	0.50	U		0.50	U		0.50	U				
Styrene	0.50	U		0.50	U		0.50	U				
Bromoform	0.50	U		0.50	U		0.50	U				
Isopropylbenzene	0.50	U		0.50	U		0.50	U				
1,1,2,2-Tetrachloroethane	0.50	U		0.50	U		0.50	U				
1,3-Dichlorobenzene	0.50	U		0.50	U		0.50	U				
1,4-Dichlorobenzene	0.50	U		0.50	U		0.50	U				
1,2-Dichlorobenzene	0.50	U		0.50	U		0.50	U				
1,2-Dibromo-3-chloropropane	0.50	U		0.50	U		0.50	U				
1,2,4-Trichlorobenzene	0.38	J	A	0.50	U		0.50	U				
1,2,3-Trichlorobenzene	0.41	J	A	0.50	U		0.50	U				

Com - Comments. Refer to the corresponding section in the Narrative for each letter.
D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.

U The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.

J The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.

R The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
Y8AT3

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW11031

Lab Code: KAP Case No.: 42404 Mod. Ref No.: _______ SDG No.: Y8AT6

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: S-4821.04

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: B39974

Level: (TRACE or LOW/MED) TRACE Date Received: 04/11/2012

% Moisture: not dec. _______ Date Analyzed: 04/21/2012

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		~~Unknown-01~~	~~2.87~~	~~1.7~~	~~J~~
02		~~Unknown-02~~	~~3.05~~	~~0.65~~	~~J~~
03		~~Unknown-03~~	~~3.08~~	~~1.4~~	~~J~~
04		~~Unknown-04~~	~~3.14~~	~~1.4~~	~~J~~
05		~~Unknown-05~~ C5H10 Cyclic Alkane	4.53	1.2	JN
06		Unknown-06	4.98	0.58	J
07	000108-20-3	Diisopropyl ether	6.00	13	NJ
08		Unknown-07	6.39	0.95	J
09	000462-95-3	~~Unknown-08~~ Methane, diethoxy-	8.53	5.4	JN
10	000628-81-9	~~Unknown-09~~ Butane, 1-ethoxy-	8.73	22	JN
11		~~Unknown-10~~	~~10.97~~	~~8.7~~	~~J~~
12		~~Unknown-11~~	~~11.86~~	~~1.4~~	~~J~~
13		~~Unknown-12~~	~~15.96~~	~~1.4~~	~~J~~
14		Unknown-13	17.22	0.60	J
15		Unknown-14	18.23	0.61	J
16					
17		SL, 9/7/12.			
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0118

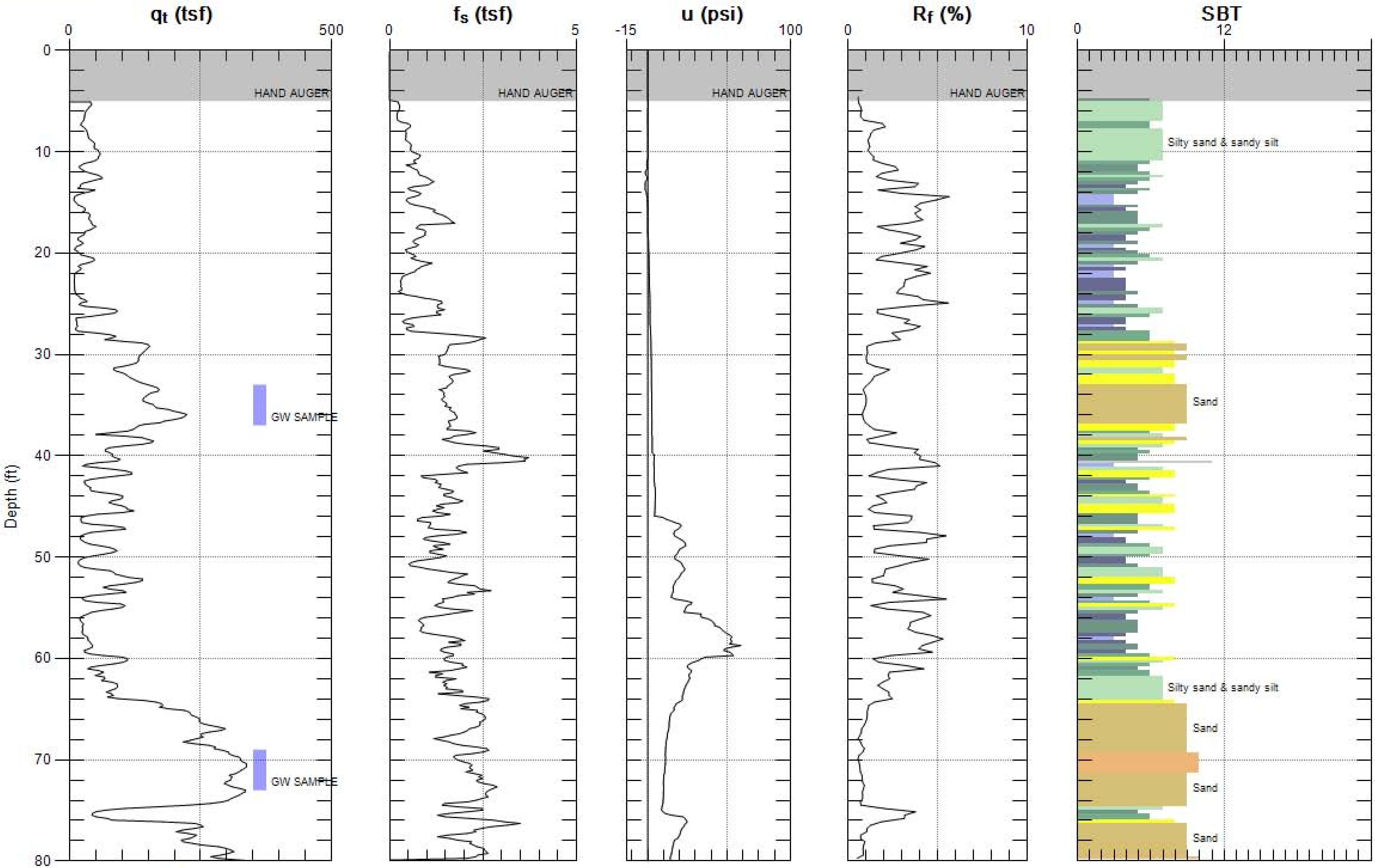
APPENDIX G:
Cone Penetration Test Boring Logs

GREGG

WESTON SOLUTIONS

Site: SOUTH GATE
Sounding: CPT-W1

Engineer: B.REILLY
Date: 4/2/2012 01:55



Max. Depth: 80.052 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

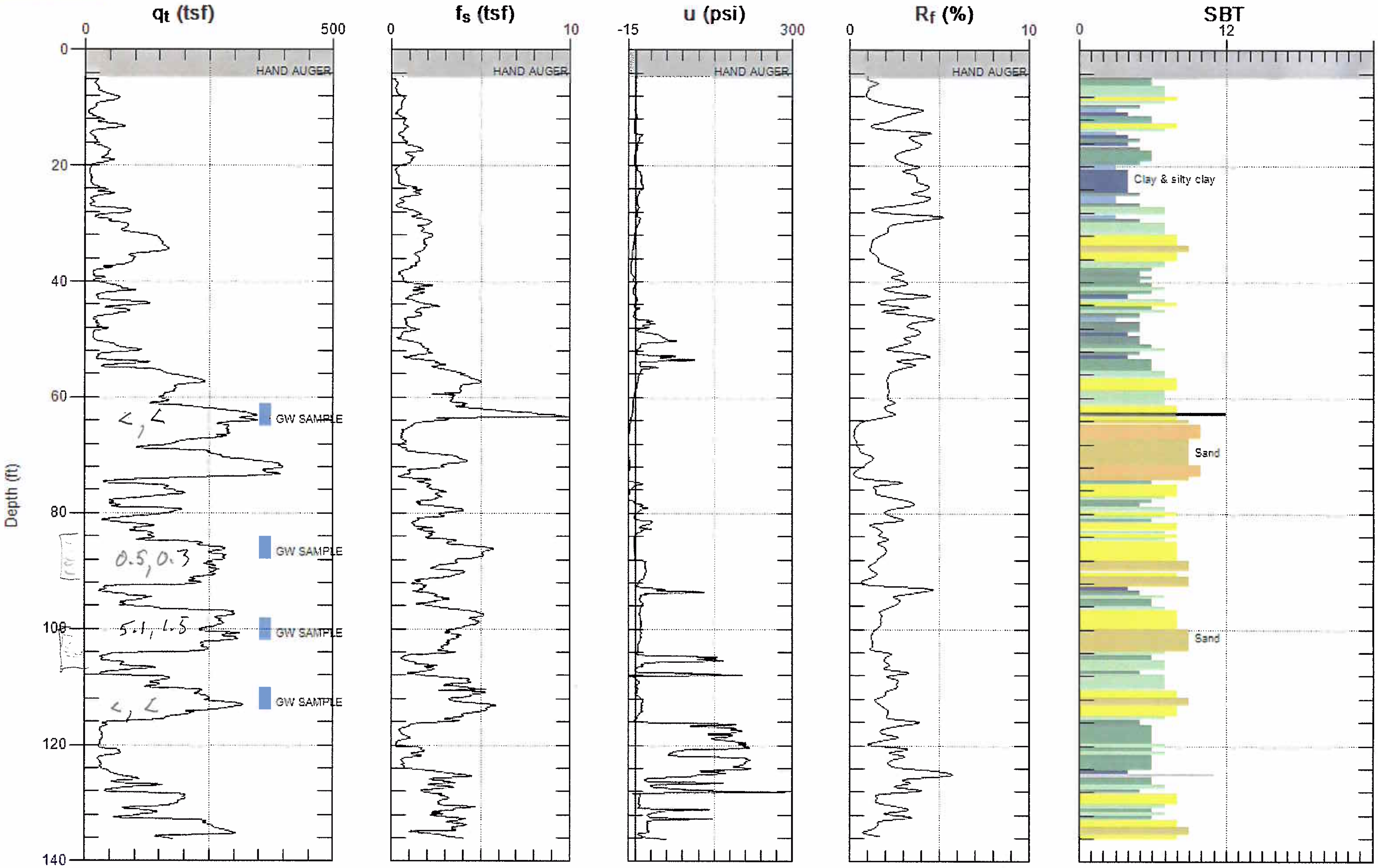
GREGG URS

Site: COOPER DRUM

Sounding: CPT-44

Engineer: D.GRUBER

Date: 2/26/2007 01:41



Max. Depth: 136.150 (ft)
Avg. Interval: 0.656 (ft)

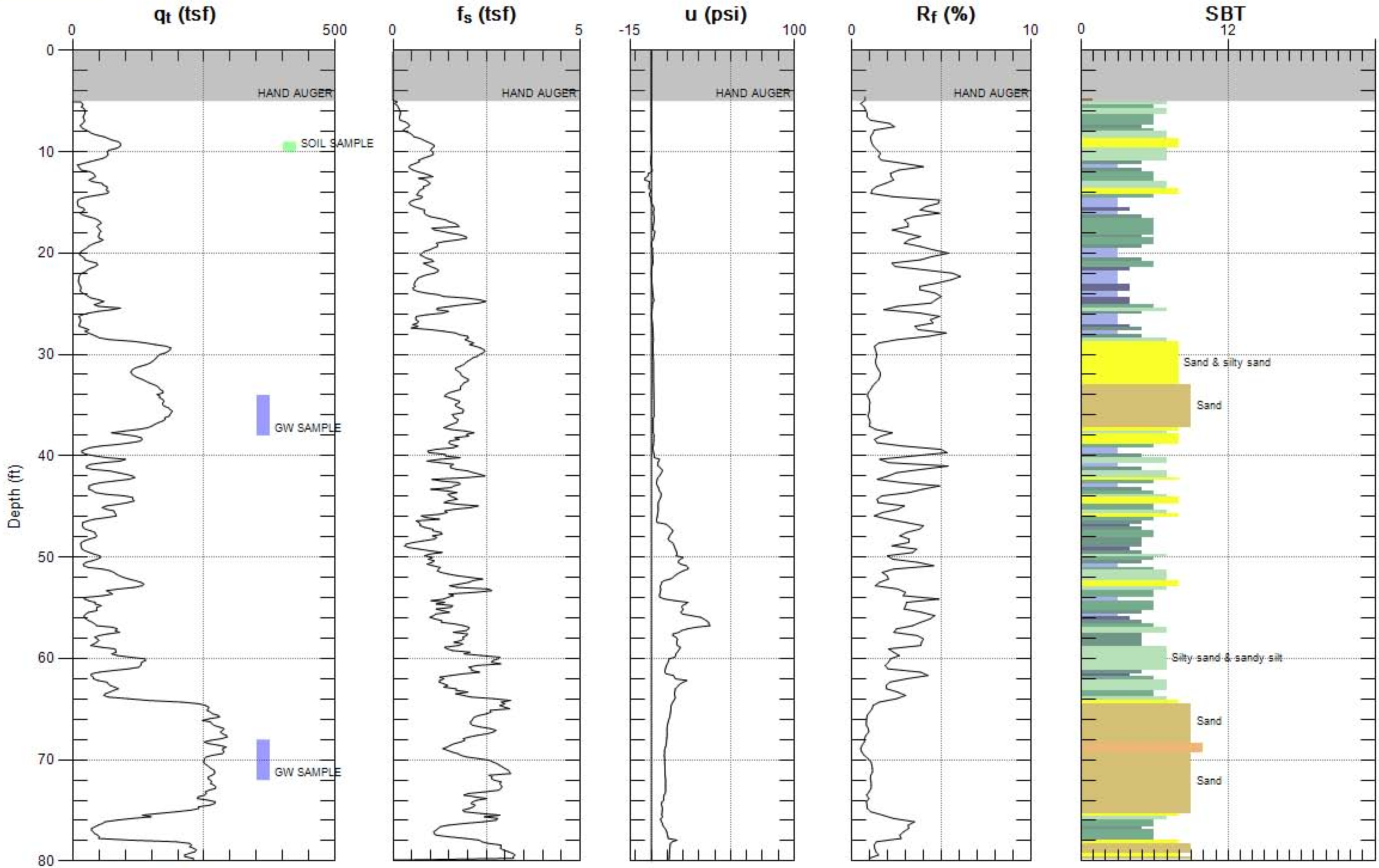
SBT: Soil Behavior Type (Robertson 1990)

GREGG

WESTON SOLUTIONS

Site: SOUTH GATE
Sounding: CPT-W3

Engineer: B.REILLY
Date: 4/4/2012 01:14



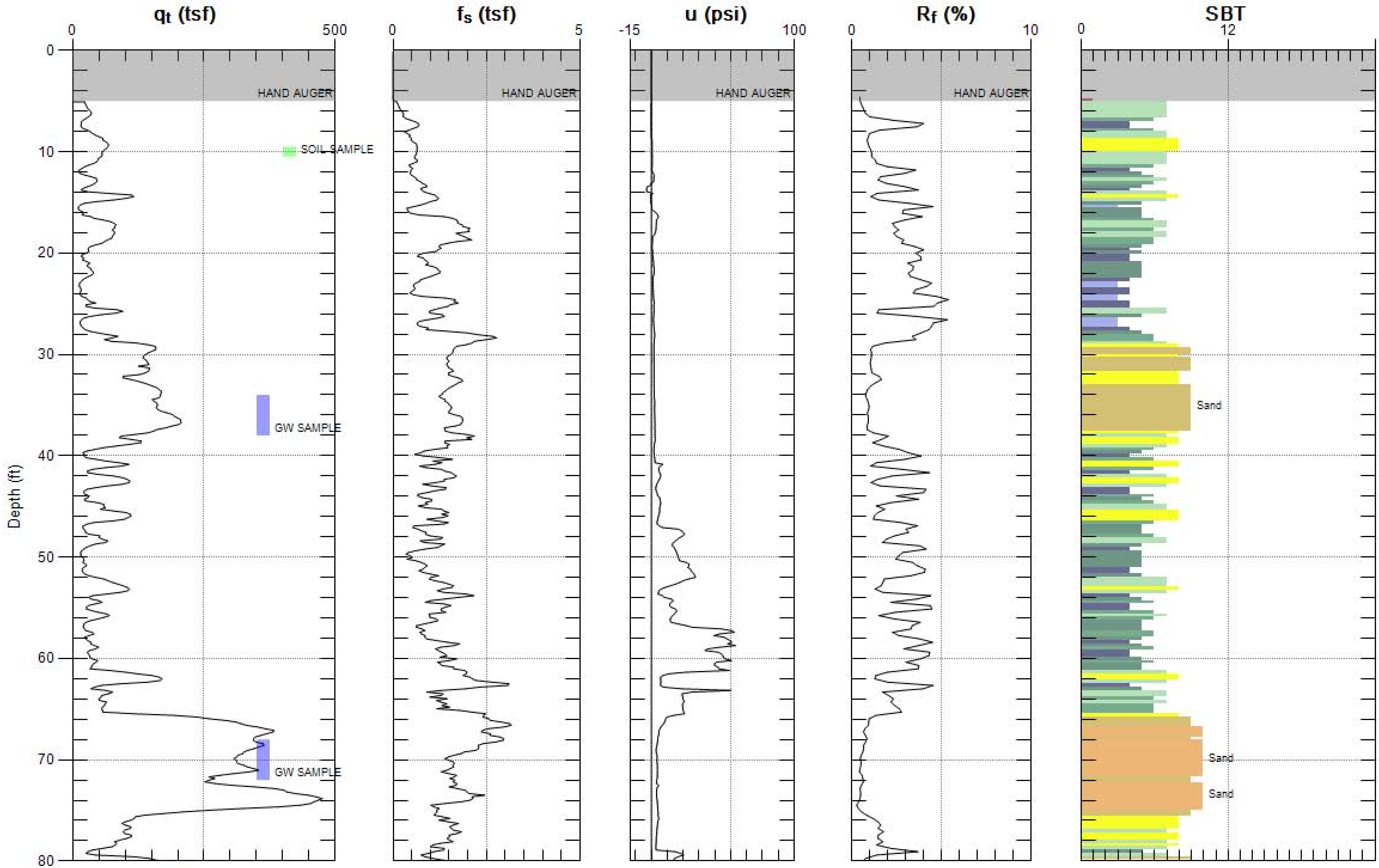
Max. Depth: 80.052 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

WESTON SOLUTIONS

Site: SOUTH GATE
Sounding: CPT-W4

Engineer: B.REILLY
Date: 4/4/2012 10:28



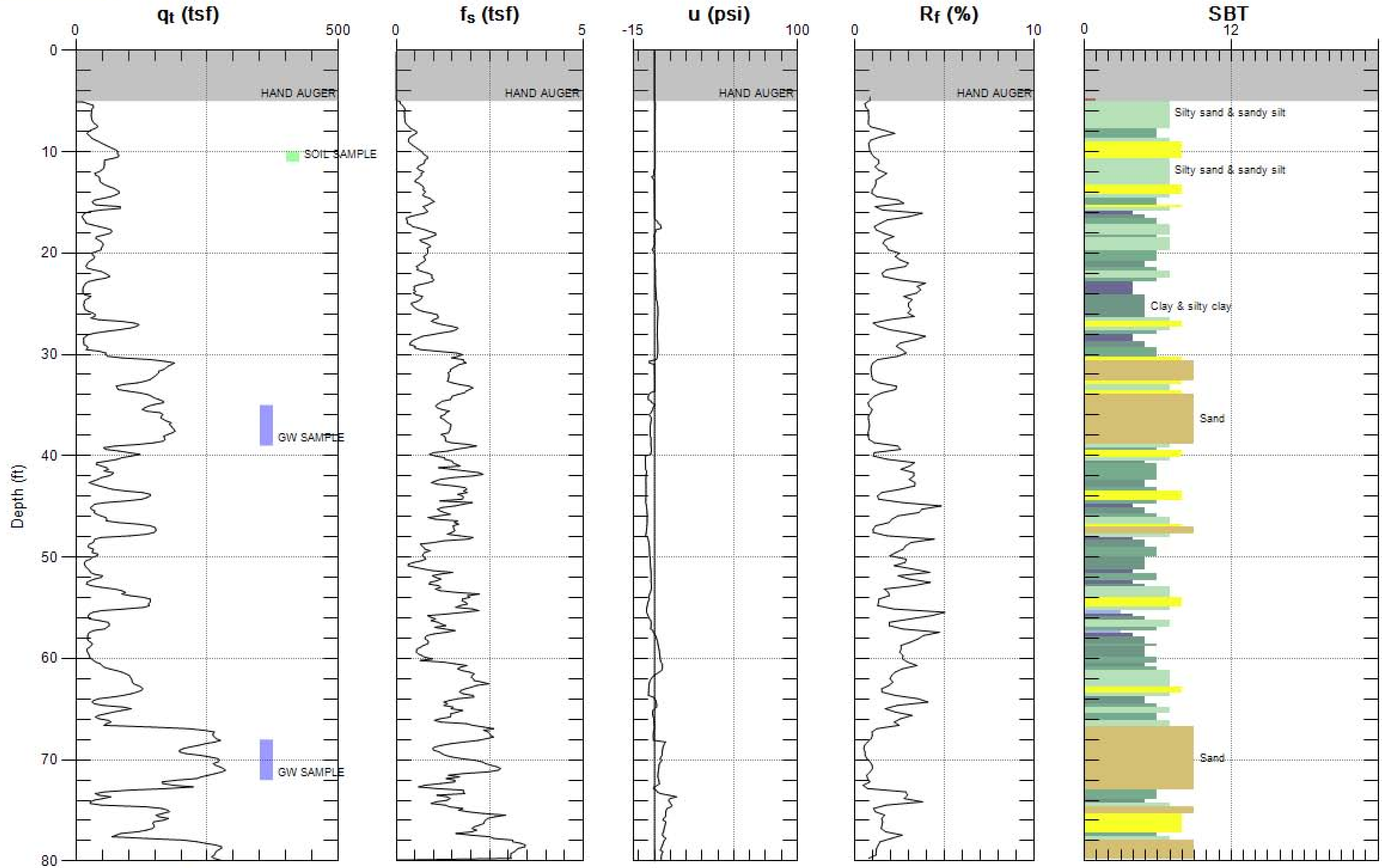
Max. Depth: 80.381 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

WESTON SOLUTIONS

Site: SOUTH GATE
Sounding: CPT-W5

Engineer: B.REILLY
Date: 4/2/2012 08:34



Max. Depth: 80.052 (ft)
Avg. Interval: 0.328 (ft)

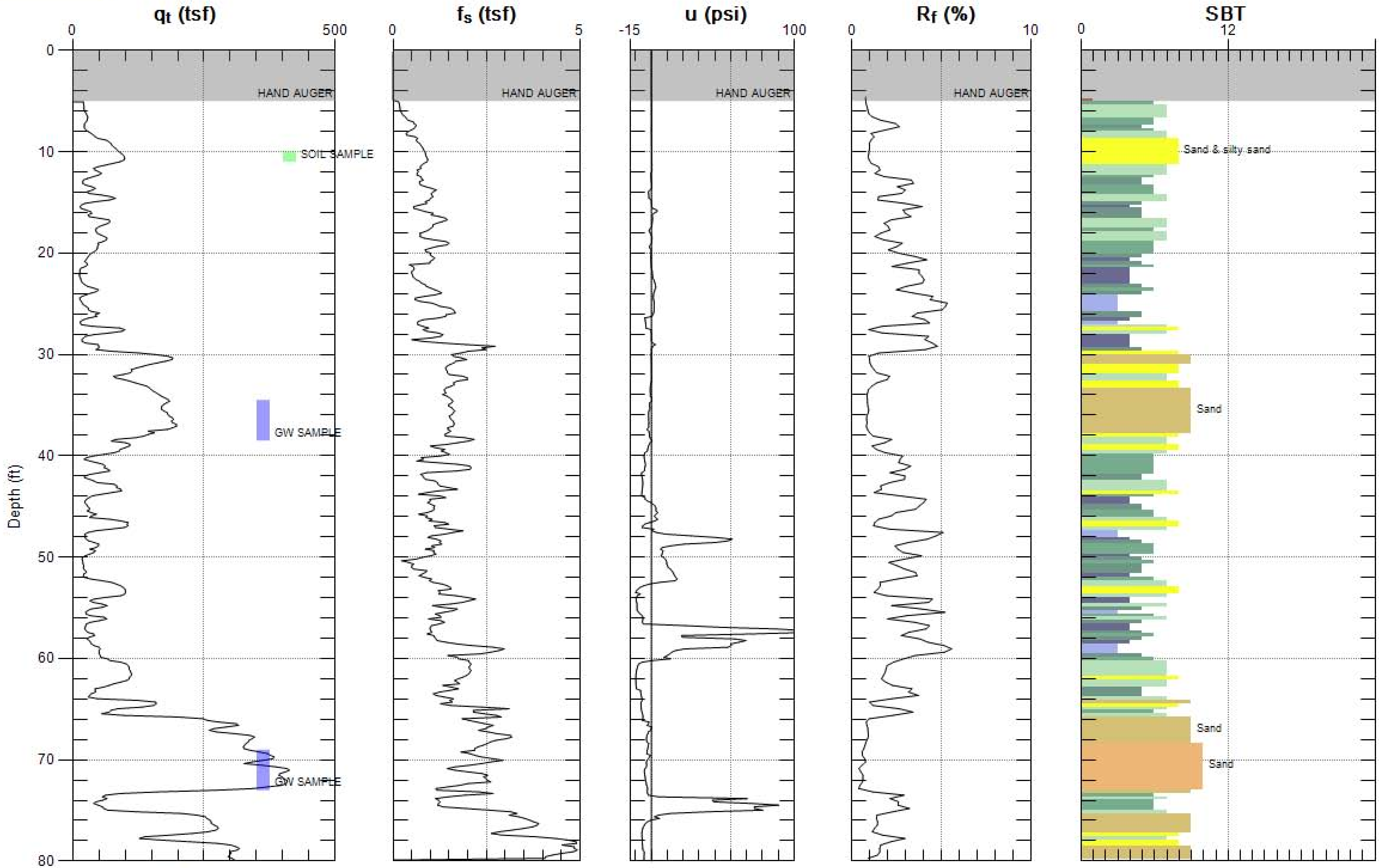
SBT: Soil Behavior Type (Robertson 1990)

GREGG

WESTON SOLUTIONS

Site: SOUTH GATE
Sounding: CPT-W6

Engineer: B.REILLY
Date: 4/4/2012 08:27



Max. Depth: 80.052 (ft)
Avg. Interval: 0.328 (ft)

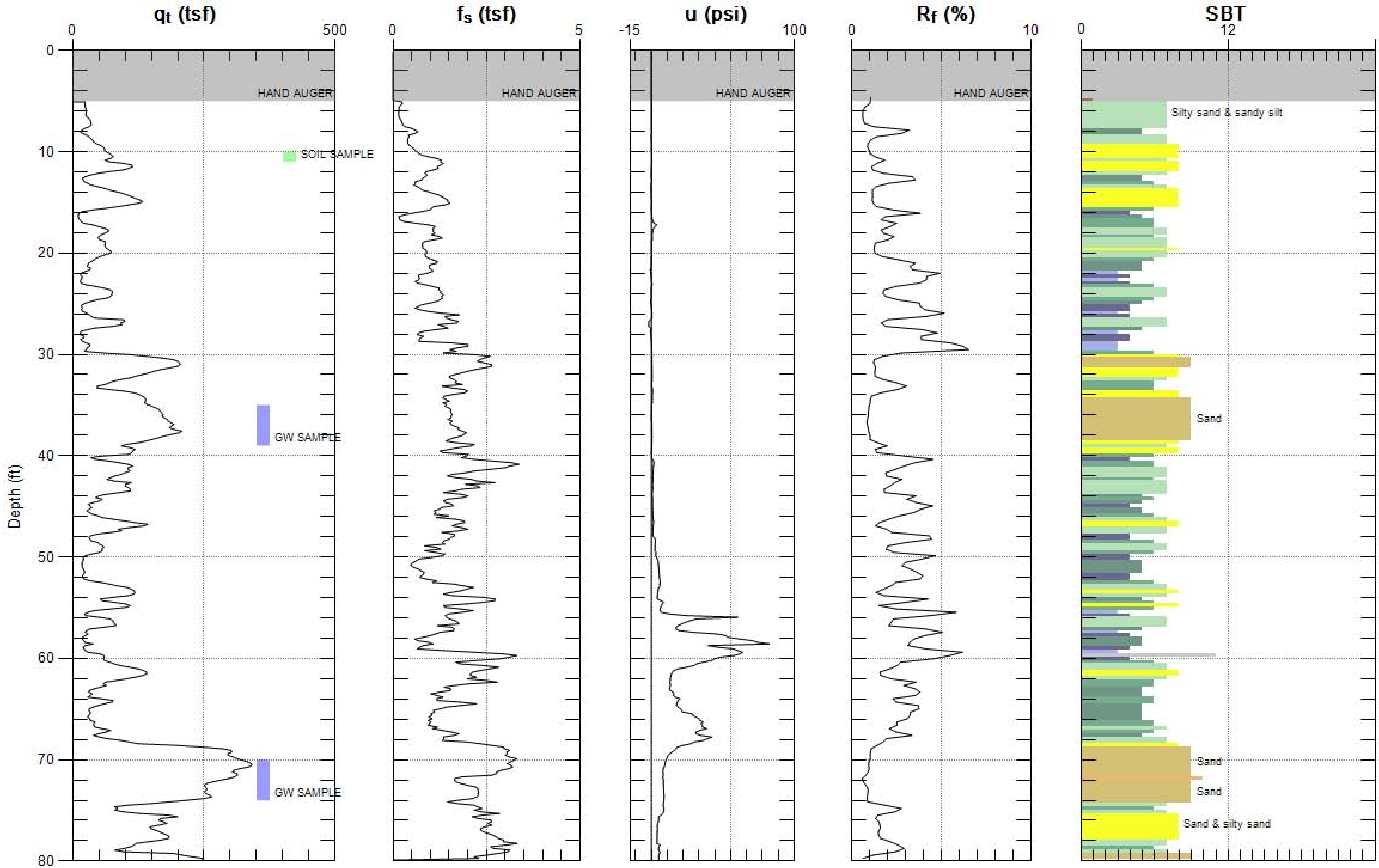
SBT: Soil Behavior Type (Robertson 1990)

GREGG

WESTON SOLUTIONS

Site: SOUTH GATE
Sounding: CPT-W7

Engineer: B.REILLY
Date: 4/3/2012 10:37



Max. Depth: 80.052 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG

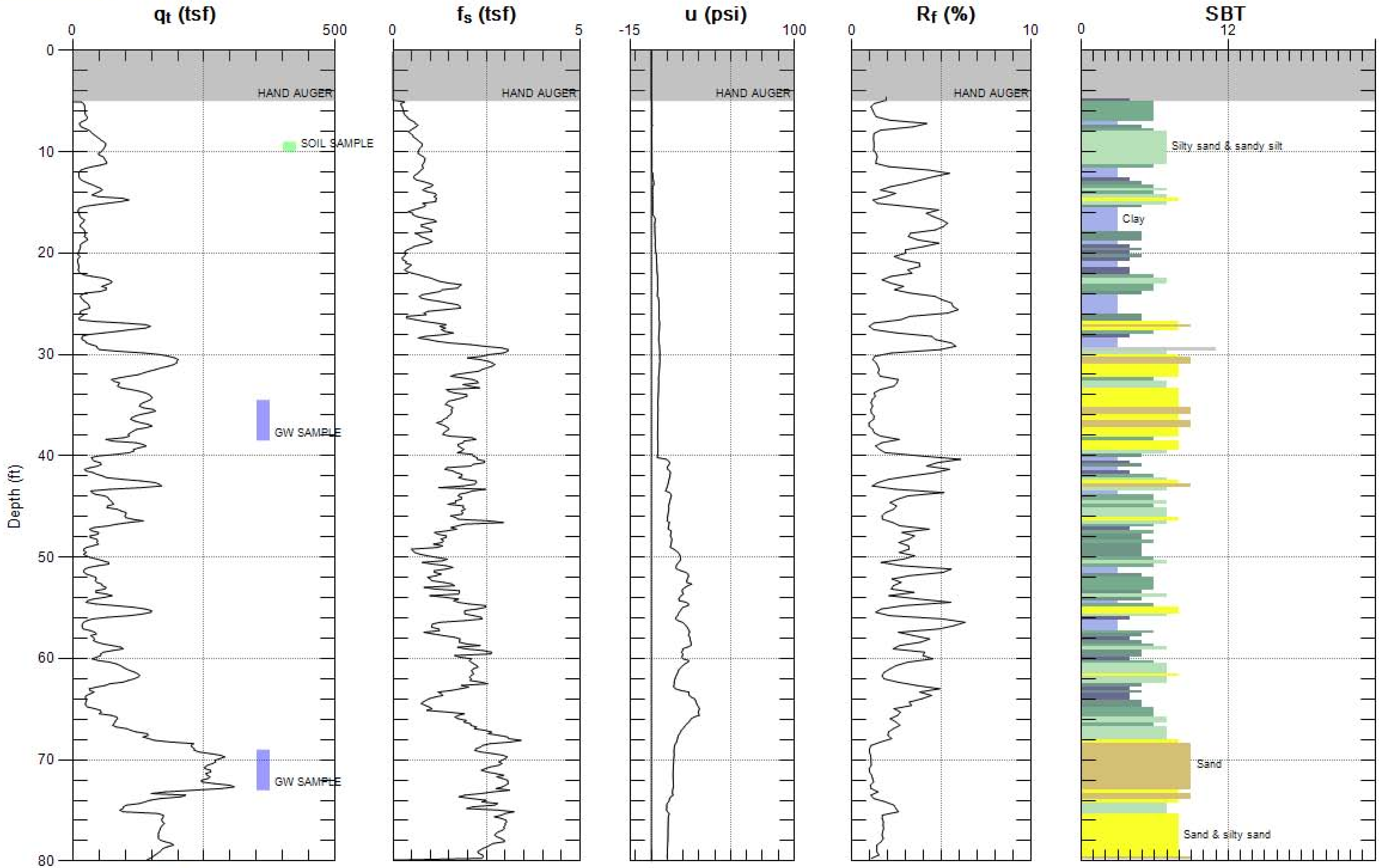
WESTON SOLUTIONS

Site: SOUTH GATE

Sounding: CPT-W8

Engineer: B.REILLY

Date: 4/3/2012 12:48



Max. Depth: 80.052 (ft)

Avg. Interval: 0.328 (ft)

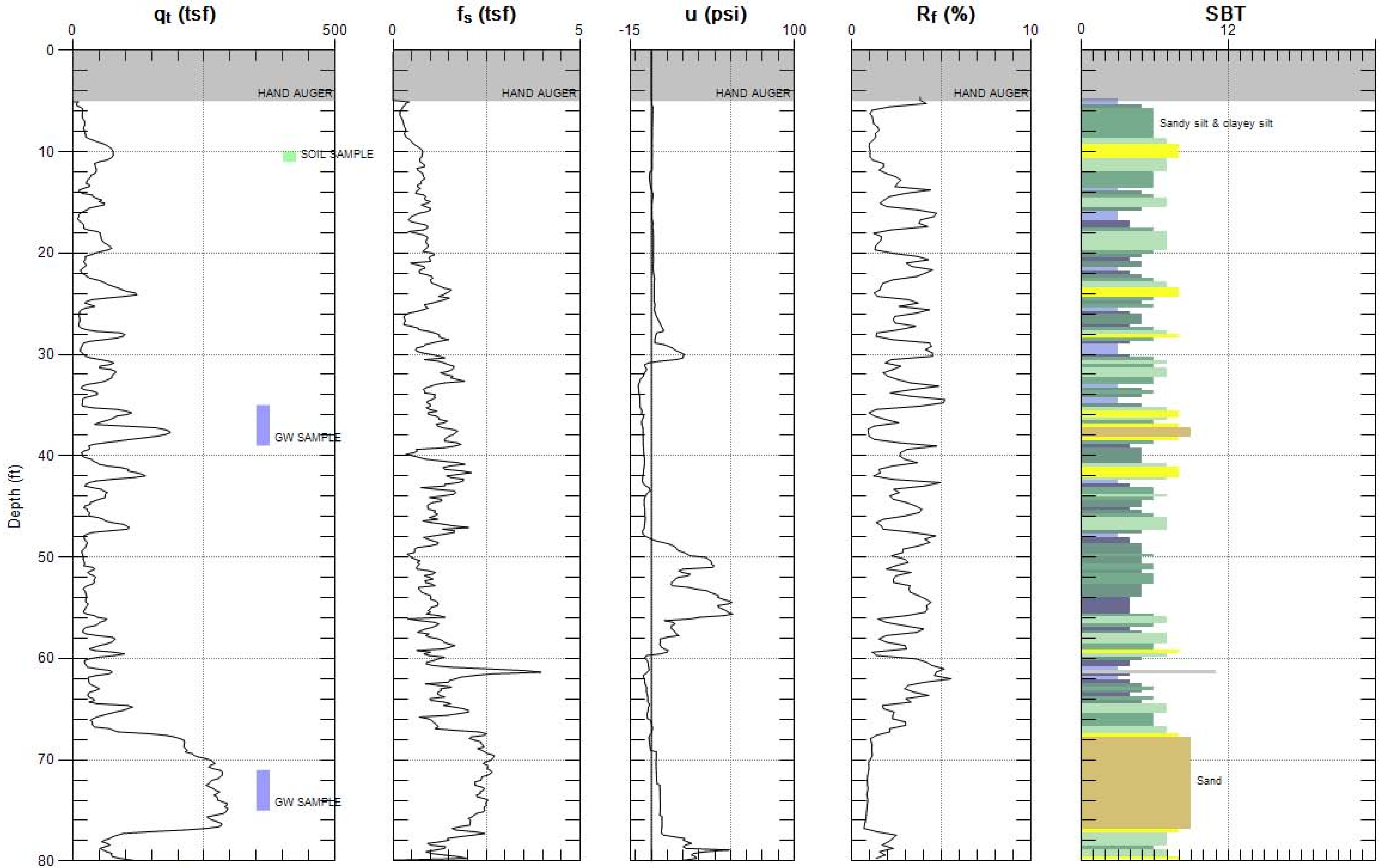
SBT: Soil Behavior Type (Robertson 1990)

GREGG

WESTON SOLUTIONS

Site: SOUTH GATE
Sounding: CPT-W9

Engineer: B.REILLY
Date: 4/3/2012 08:15

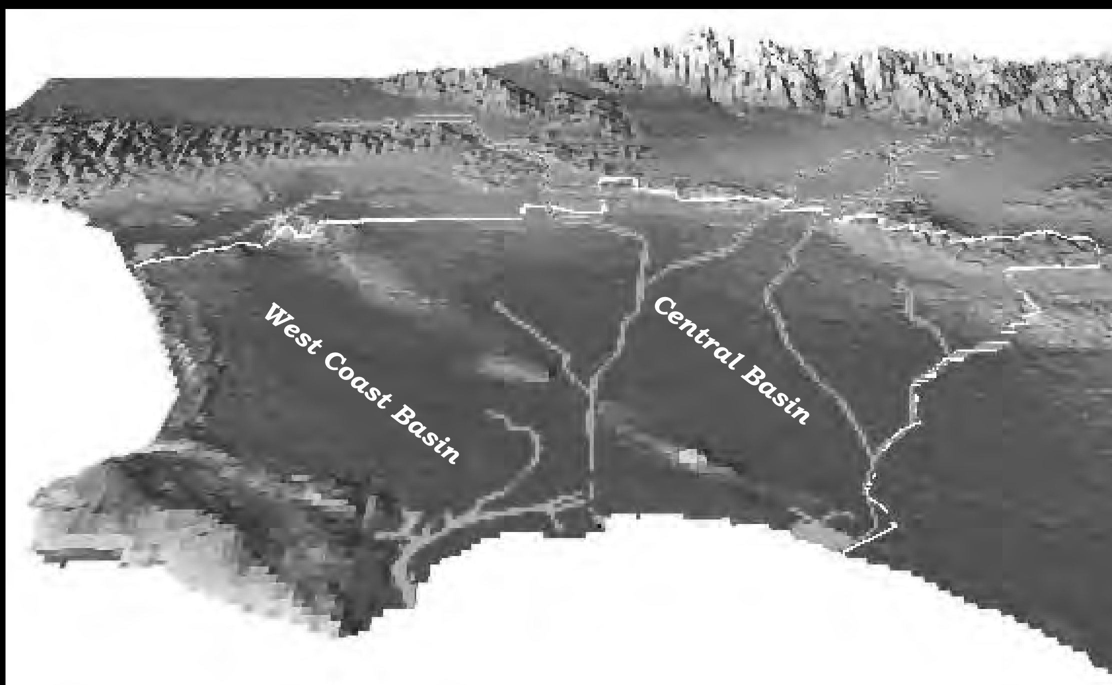


Max. Depth: 80.052 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX H:
EPA Quick Reference Fact Sheet

Reference:
WRD, 2011



Engineering Survey and Report

2011

WRD

March 4, 2011

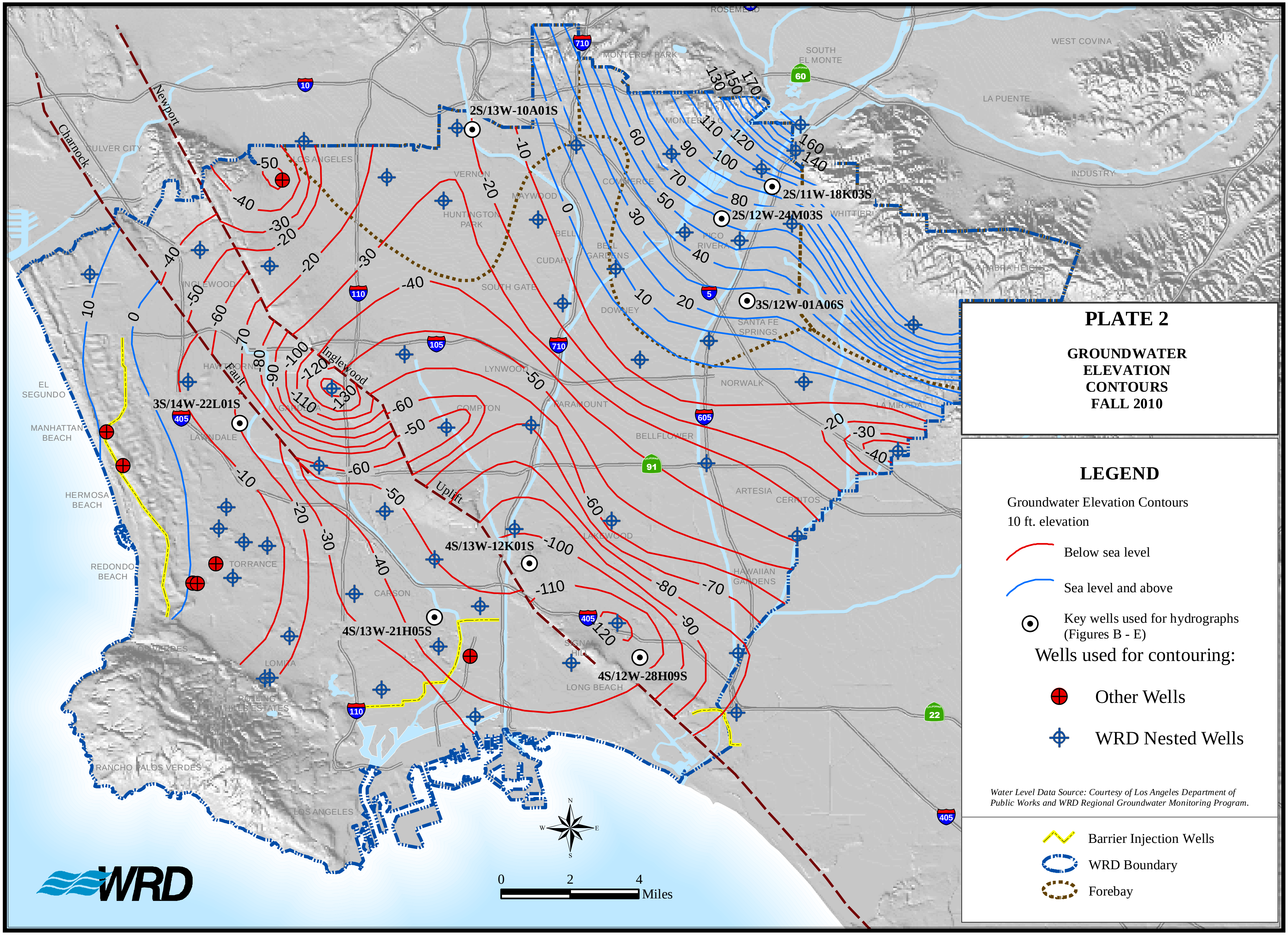


PLATE 2
GROUNDWATER
ELEVATION
CONTOURS
FALL 2010
LEGEND
Groundwater Elevation Contours
10 ft. elevation
Below sea level
Sea level and above
Key wells used for hydrographs
(Figures B - E)
Wells used for contouring:
Other Wells
WRD Nested Wells
Water Level Data Source: Courtesy of Los Angeles Department of Public Works and WRD Regional Groundwater Monitoring Program.
Barrier Injection Wells
WRD Boundary
Forebay
2S/13W-10A01S
2S/11W-18K03S
2S/12W-24M03S
3S/12W-01A06S
3S/14W-22L01S
4S/13W-12K01S
4S/13W-21H05S
4S/12W-28H09S
Newport
Charnock
Inglewood
Fault
Uplift
ROSEMEAD
MONTEREY PARK
SOUTH
EL MONTE
WEST COVINA
LA PUENTE
INDUSTRY
WHITTIER
LA HABRA HEIGHTS
LA MIRADA
CULVER CITY
LOS ANGELES
VERNON
HUNTINGTON
PARK
MAYWOOD
BELL
BELL
GARDENS
CUDAHY
COMMERCE
MONTEBELLO
PICO
RIVERA
SOUTH GATE
DOWNEY
SANTA FE
SPRINGS
NORWALK
INGLEWOOD
HAWTHORNE
LYNWOOD
PARAMOUNT
COMPTON
BELLFLOWER
ARTESIA
CERRITOS
LAKEWOOD
HAWAIIAN
GARDENS
GARDENA
LAWNDALE
EL
SEGUNDO
MANHATTAN
BEACH
HERMOSA
BEACH
REDONDO
BEACH
TORRANCE
CARSON
LOMITA
ROLLING
HILLS ESTATES
RANCHO PALOS VERDES
SIGNAL
HILL
LONG BEACH
LOS ANGELES
WRD
0
2
4
Miles
N
S
E
W